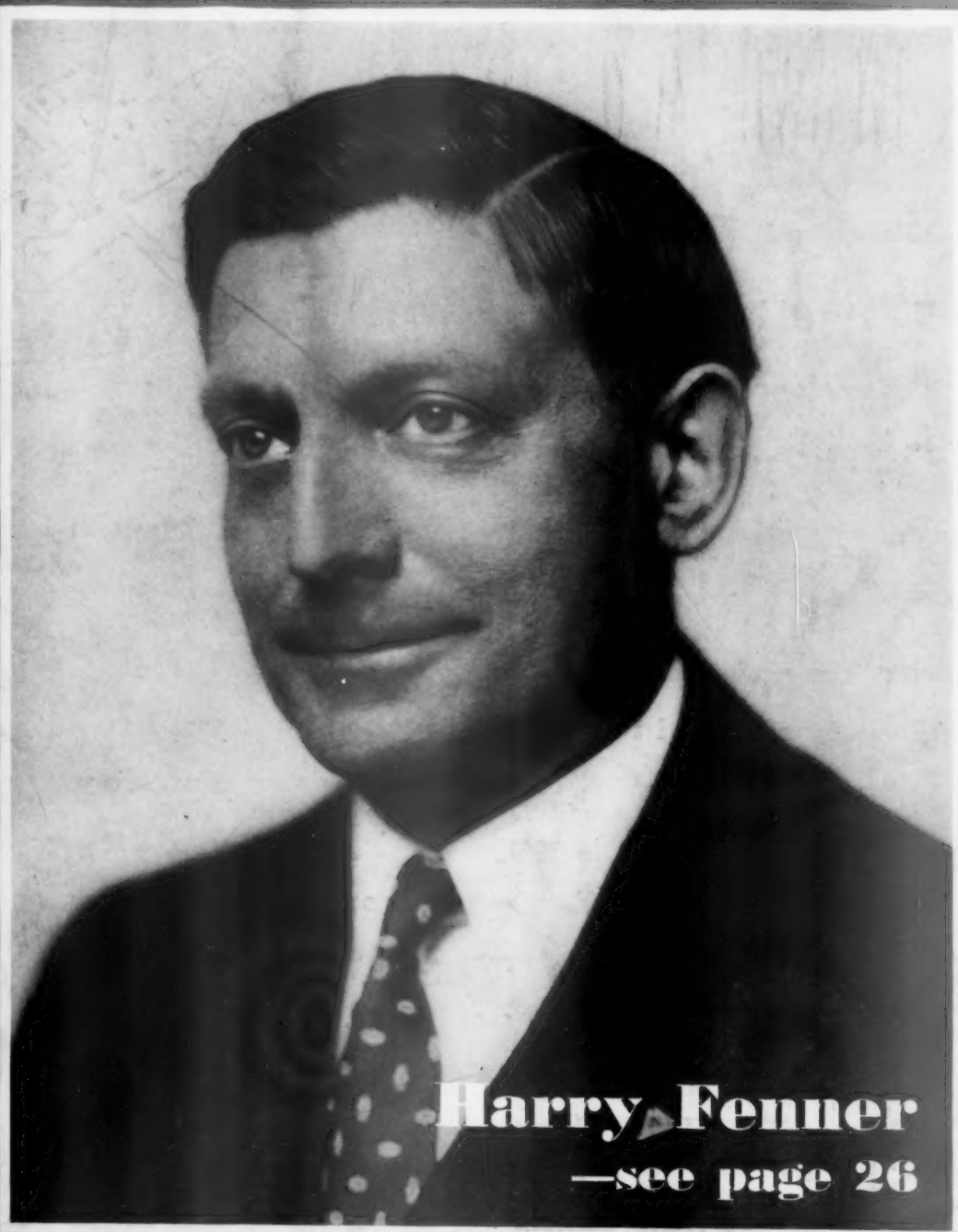


TECHNICAL COPY

First Copy

PURCHASING

SINCE 1915 • THE NATIONAL MAGAZINE FOR PURCHASING AGENTS



Harry Fenner

—see page 26

Vol. VII No. 8

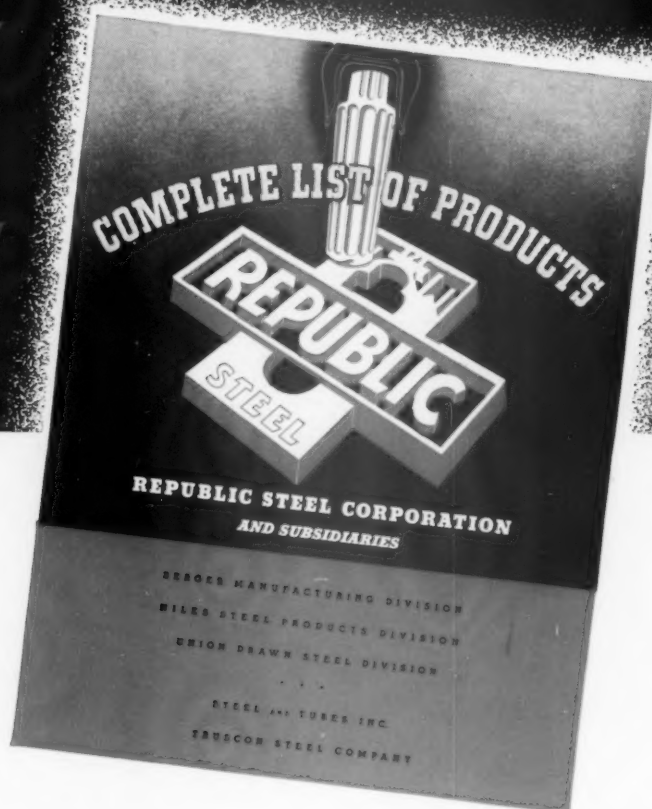
AUGUST 1939



We prepared this book for ourselves

**NOW YOU MAY
HAVE A COPY**

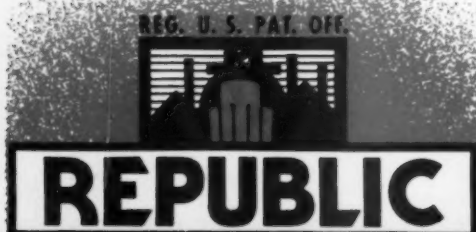
**You'll find it handy in
your purchasing department—in your stock
room—and in the field.**



● The steels and steel products made by Republic and its subsidiaries are so many and so varied that even our own men have difficulty in remembering them all. To help our own organization, we prepared this book containing a complete listing.

After internal distribution a small stock remains, and you may obtain a copy on request while the supply lasts.

Just ask for the "Complete List of Products."



STEEL

CORPORATION

General Offices: Cleveland Ohio

BERGER MANUFACTURING DIVISION
UNION DRAWN STEEL DIVISION
NILES STEEL PRODUCTS DIVISION

TRUSCON STEEL COMPANY
STEEL AND TUBES, INC.

When writing Republic Steel Corp. for further information, please address Department EP



A rubber jaw for teeth that chew up river beds

A typical example of Goodrich improvement in rubber

YOU'VE seen dredges at work, cleaning mud out of harbors so that ships can navigate. The huge steel "teeth" above are what do the work. They turn, bite into the hard mud, and loosen it so it can be sucked up through a pipe, and carried away.

Like all moving teeth, these monsters of steel have to be held in a "jaw"—in this case a bearing. But the cloud of mud and sand stirred up by dredging gets into the bearing, cuts it, wears out the hardest metal in short order.

An inventor had an idea for a rubber bearing—but there was no rubber

tough enough to stand the abrasion. He came to Goodrich where engineers went to work, finally developed a special rubber compound to do the job. Bearings were made of it—and found to outlast metal as much as 10 to 1. The soft but tough rubber can't be cut by the sand, it withstands the abrasion of sand and turning shaft, and it cushions and protects the shaft, prolonging its life too.

Manufacturers with ideas for new products, users of rubber goods with problems concerning standard products, both find friendly cooperation, exceptional facilities, unequalled ex-

perience in rubber and its uses—at Goodrich. Don't assume that any new product idea you have is impossible . . . don't assume that the life you are getting from any standard rubber product is satisfactory . . . until you find out what Goodrich engineers and Goodrich developments in rubber and synthetics can do for you. The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, Ohio.

Goodrich

ALL *products problems* IN RUBBER

PURCHASING

Established 1915 as "The Purchasing Agent"
Consolidated with "The Executive Purchaser"

PURCHASING is an independent journal, not the official organ of any association. It is the only publication of national scope devoted exclusively to the interests and problems of the purchasing executive in industry and government.

Contents for August

Yours on Request	4, 6, 8
F. O. B.	14
Mail	16
A Milestone for PURCHASING	19
The Purchasing Agent's Part in Property Protection W. H. Bleecker	20
The Efficiency of Purchasing T. W. Estabrook	23
Silhouette Studies 41: Harry Fenner	26
The Purchase of Automotive Equipment 2: Characteristics of the Chassis R. E. Plimpton	27
Cost vs. Price in Finished Steel Earl R. Jewell	29
Too Many Hands Spoil the Printing Specification Ken Tuttle	32
Personalities in the News	34
Obituary	36
Among the Associations	38
Buyer's Bookshelf	40
The Market Place	49
New Products & Ideas	52
Index to Advertisers	63

Published monthly by
BOFFEY PUBLISHING CO., Inc.
205 East 42nd Street, New York, N. Y.
Harvey Conover, *President and Treasurer*; B. P. Mast, *Vice-President*;
Hartley W. Barclay, *Secretary*.

STUART F. HEINRITZ.....Editor

Advertising Representatives
GEO. B. HOWARTH,
205 East 42nd St., New York

H. N. PICKETT,
2843 Hampton Road, Cleveland

STANLEY J. SMITH,
333 N. Michigan Ave., Chicago

Acceptance under the Act of June 5, 1934, at Easton, Pa., Authorized June 4, 1936

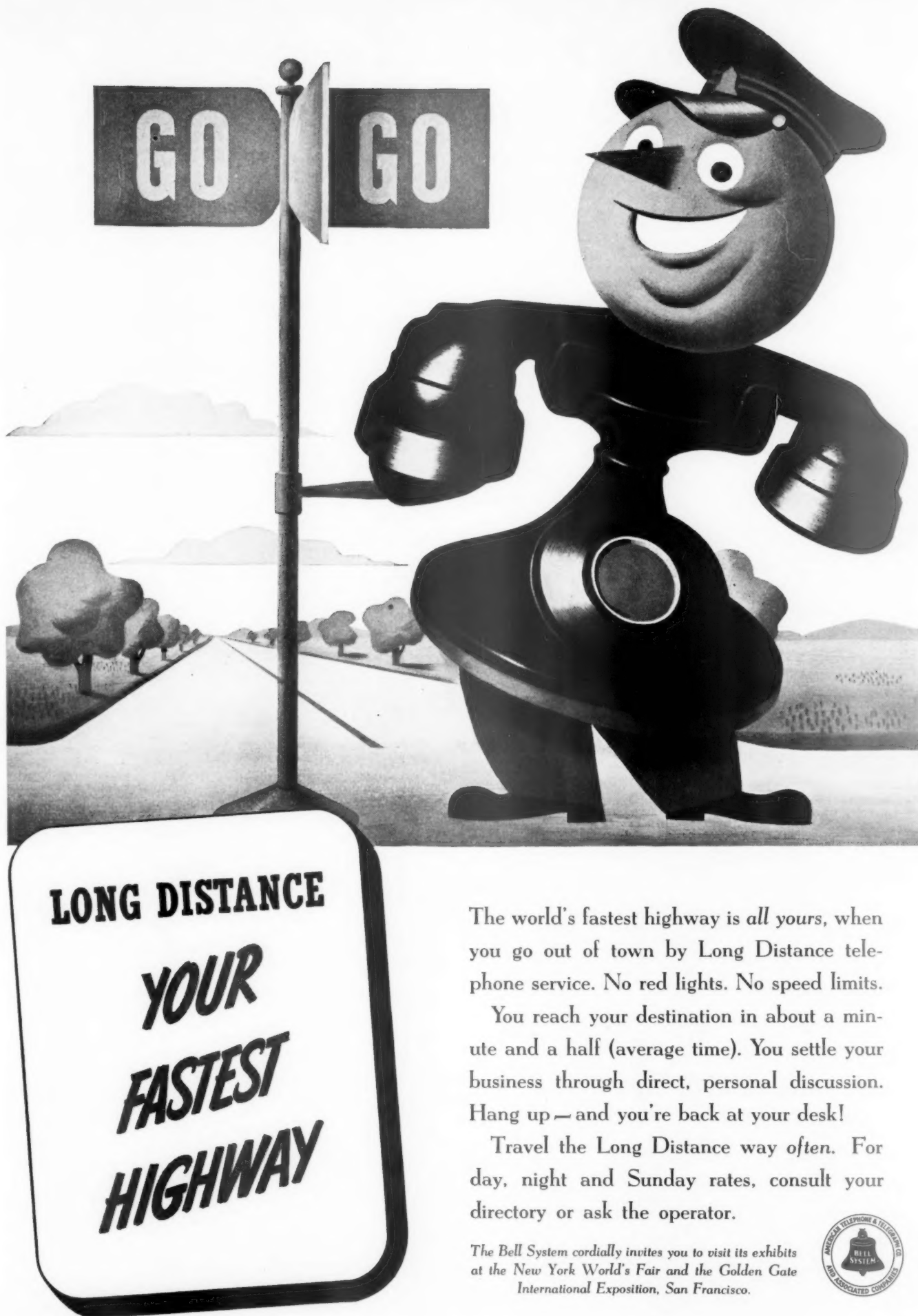
VOLUME VII
NUMBER 8

August 1939

15c A COPY, \$1.00 A YEAR
CANADA AND FOREIGN, \$1.50 A YEAR

PAGE 2

PURCHASING



The world's fastest highway is *all yours*, when you go out of town by Long Distance telephone service. No red lights. No speed limits.

You reach your destination in about a minute and a half (average time). You settle your business through direct, personal discussion. Hang up — and you're back at your desk!

Travel the Long Distance way *often*. For day, night and Sunday rates, consult your directory or ask the operator.

The Bell System cordially invites you to visit its exhibits at the New York World's Fair and the Golden Gate International Exposition, San Francisco.



Yours on Request

Purchasing agents will find it well worth their while to read the publications reviewed on this and the following pages. From among the many submitted to us, they have been selected by the editors as having greatest interest and utility value to purchasing agents.

To obtain copies, simply fill in and mail coupon at the bottom of this page.

657. Catalog No. 82 of the Ludlow-Saylor Wire Co. is a complete treatise and reference book on wire cloth and woven wire screens in all grades and weaves, of all commercial metals and alloys, and for all purposes. Its 72 pages, conveniently assembled with plastic spiral binding, contain a wealth of information on the selection and characteristics of standard and special constructions, illustrations, and dimensional tables. Featured is Super-Loy, an economical steel for heavy-duty applications.

670. The proper sealing of packages with the correct gummed tape applied skillfully has its benefits in both efficiency and economy. "Helpful Hints on Sealing Methods" is the title of a 4-page folder being offered by Moore & Thompson which gives much information on this subject.

721. The new sample book of thin papers just completed by Esleeck Mfg. Co. contains samples for use as record forms, letterheads, copies, advertising, legal documents, air mail, branch office and foreign correspondence. It contains a variety of samples of weights, finishes and colors, and grades ranging from 25% to 100% rag content.

722. A comprehensive 106-page 8 1/2" x 11" loose-leaf catalog recently issued by Pulmosan Safety Equipment Co. covers virtually all industrial safety equipment requirements. Some of the numerous products illustrated and described are respirators of all types and for all purposes, hoods, helmets, masks, goggles, gloves, welding shields, safety ladder shoes, leggings, aprons, inhalators, fire-fighting equipment, first aid kits and supplies, safety shoes, foot guards, safety belts, salt tablets, etc.

726. A 12-page combination catalog, manual, and price list on Apex-Phillips screwdrivers and bits for electric, air, and spiral drivers is offered by the Apex Machine & Tool Co. Designed to supply purchasing agents, tool supervisors, and production engineers with detailed information regarding drivers for Phillips recessed head screws and slotted head screws, two tables are given for determining the correct bit size for Phillips wood, machine, and sheet metal screws and stove bolts and for flat, oval, binding and round head slotted screws. Power bits are illustrated for 32 makes and styles of power drivers as well as hand drivers.

757. You can save money and get better results by knowing the correct grade of thin paper to specify for various office and factory uses. Valley Paper Company's "Thin Paper Efficiency Chart" gives this complete time-and-money-saving information. The chart fits under desk glass or can be hung on the wall for easy reference.

761. The refinement of valve designs to match specific needs of each service condition has of necessity resulted in complicating the task of valve selection. Recognizing this fact, Crane Company has issued an 8-page folder entitled "Service Characteristics of Globe Valves and Gate Valves—How to Pick the Right One Every Time," which, as the name implies, is designed to help the user select the proper valve for his particular service. Two charts in addition to many cutaway diagrams assist in this purpose.

765. It is always of advantage to know where a product desired is available. It is with this in mind that the American Chain & Cable Co., Inc. have prepared a 12-page booklet listing the principal products of the several divisions of the company. Two pages of the booklet are devoted to an alphabetical products index, the page numbers of which refer to the company division manufacturing the product. Also listed in convenient form are the sales offices and their addresses.

766. An interesting 24-page booklet which has as its keynote, perfect shipping, is that published by Signode Steel Strapping Co. giving many helpful hints and suggestions on shipping problems. Articles on shipping practices and methods are included and the many fine photographs vividly portray the results of both good and bad packing.

772. A new series of alloy data charts designed to permit a quick easy selection for the proper heat treatment for your job has recently been developed by Peter A. Frasse & Co., Inc. Each alloy bar shipment is accompanied by a chart listing physical properties obtainable at drawing temperatures from 800° to 1,300°, at 100° intervals, for both the low and high side of the steel's carbon content. In addition, the effect of increased mass (up to 5" dia.) is shown for the 1,000° draw.

775. Written as an absorbing human interest story, the 26-page booklet prepared by Old Town Ribbon & Carbon Co., Inc. presents a fund of knowledge for all who purchase or use ribbons and carbons. It deals with the two elements of graphic production from which most is required and about which least is generally known—typewriter ribbons and carbon papers. Many illustrations exemplify the subject matter.

780. A new cleaning material has been developed by Oakite Products, Inc. by means of which polishing compounds, grease, smut, oil, and dirt are removed from polished steel before plating, in one operation. The May-June issue of the house organ, "Oakite News Service" gives complete detailed information on the uses and advantages of this cleaning material in an article titled "The Cleaning of Polished Steel Before Plating." Microphotographs aid in explaining the subject matter.

788. The 1939 edition of the "Operators Handbook" published by the B. F. Goodrich Co. is designed to provide information for commercial tire users. The handy, pocket-size, 96-page tire reference booklet contains a general discussion of tire problems and the main features of tire building for the commercial field, 24 pages of description of the company's line of truck and bus tires with complete specifications, a section on farm service tires with a new table giving air pressures for tires used on tractors and farm implements, and many tables on load ratings, inflation pressures, etc.

790. A new and larger edition, comprised of 144 pages, is the new catalog just issued by Winter Brothers Co. Data on their complete line of taps, dies, and screw plates is given together with useful shop information and commercial standard tables frequently referred to by mechanics. Attractively bound in black cover with silver lettering, it provides a handy and informative reference book.

(Additional listings on pages 6 and 8)

PURCHASING, 205 East 42nd St., New York, N. Y.

I wish to receive the following literature:

Numbers:

Name

Company

Address

City State



★ Circular describing tests available on application.



"TESTS* PROVE LONGER LIFE OF CLIPPER LUBRIHIDE PINS!"

— Says Col. Clipper

● Here is positive proof that Clipper LUBRIHIDE connecting pins for belt joints last 2 to 4 times longer.

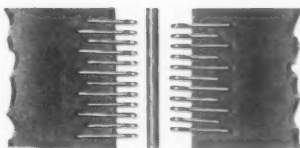
The 10 joints from which these connecting pins were taken were all run in the same test belt for the same length of time. The rawhide pins were the finest obtainable.

Clipper LUBRIHIDE Pins are rawhide pins with BUILT-

IN LUBRICATION. This lubrication provides continuous frictionless oscillation, reducing fatigue strains on the hooks, and greatly prolonging the life of the belt joints.

LUBRIHIDE Pins—an exclusive Clipper product—are packed as standard with ALL Clipper Belt Hooks. Available in separate packages for replacements. Order from your mill supply jobber today!

Clipper Belt Lacer Co., Grand Rapids, Mich., U. S. A.



Each hook is independent, assuring flexibility. Double-staggered points prevent damage to belt.

Copyright, 1939, Clipper Belt Lacer Co.



Clipper

BELT LACING

EQUIPMENT

Yours on Request

Purchasing agents will find it well worth their while to read the publications reviewed on this and the preceding pages. From among the many submitted to us, they have been selected by the editors as having greatest interest and utility value to purchasing agents.

To obtain copies, simply fill in and mail coupon at the bottom of this page.

801. The Strathmore Family of staple papers, comprising a popular quartet of "Bond," "Fairfield," "Text," and "Cover," is presented in the form of a compact, unified handbook prepared by the Strathmore Paper Company. Eye-appealing, practical color selectors indicate the extensive range of shades. Surfaces, sizes, and envelopes are also well illustrated. A "Price and Data Book" is enclosed to speed and simplify estimates.

805. Unusually attractive, convenient and informative is the Central Paper Company's booklet, "Safetex—Geared to the Box," a handbook on **gummed tape** and its application. Mounted on plastic ring binders, with stiff cover to lie flat, the booklet has a colored and cut-tab index giving instant access to 12 concise and well illustrated sections. Of special interest is the Safetex glue surface grooved for perfect moisture distribution, faster and firmer sticking; trouble shooting in the packaging department; moisteners; freight and express requirements.

806. Two new folders have just been issued by Wm. E. Hooper & Sons Co. describing and illustrating the use of **treated canvas** for roofing, decking, building construction, boat covers, tarpaulins, etc. The folders stress the long life and economy of treated canvas as well as its safety, and tell how it can be treated on the job. An improved treatment for fire, water and weather resistance that is claimed will never wash out regardless of exposure or length of service is described. Much other information of value to all users of cotton duck for industrial and marine purposes is also included.

807. Printed in two colors throughout and attractively illustrated, the 92-page Catalog No. 39 issued by the Bonney Forge & Tool Works covers a full line of **alloy steel sockets, wrenches, and small hand tools**. Many new additions are shown including $\frac{1}{4}$ " square drive sockets with openings from $\frac{1}{4}$ " to $\frac{7}{16}$ ", an adjustable hacksaw frame together with a full line of hacksaw blades, many new sizes of box wrenches, and a full line of files in six different types. The new items are shown in addition to the already complete line of tools, including sockets with detachable handles, open end, box, and "TuType" wrenches, torque indicating wrenches, screw drivers, pliers, hammers, punches, chisels and a full line of socket and tool sets with assortments to meet individual requirements.

808. Complete listings and new prices of **malleable and combination chains and chain attachments** and of the most widely used sizes of machine finished roller chain and all steel engineering type chains is found in the completely illustrated Moline Malleable Iron Company catalog. 22 pages are devoted to sprocket wheel listings. Capacities, weights, prices, etc. are given for six types of elevator buckets and a very thorough description is included of flight conveyors.

809. Prices and descriptions of the new and improved **BBB welding electrodes** are given in a new bulletin published by the Becker Brothers Carbon Co. In addition to general operation data concerning grip, length of taper, position of shield, etc., the bulletin also illustrates practical solutions to various welding problems such as replacing a gear tooth, replacing or repairing machine parts, and so on. **BBB cored electrodes** for A. C. welding and cutting are also explained and priced.

810. Devoted to and enclosing actual samples of "Fentonamel" labels is the 22" x 17" folder issued by the Fenton Label Co., Inc. The red, white, and blue colors available, sizes, net prices, savings, and much other information on these **shipping labels** is incorporated in the folder in addition to more than 75 three-color illustrations.

811. Realizing the growing importance and need for uniform **high quality weld deposits** in the fabrication of stainless steels, The McKay Company has initiated the practice of certifying weld deposits of a specified chemical analysis. In a 16-page booklet prepared by the company is described the method of certification, what it is based on, and what it covers.

812. For guards, watchmen, police, or others who desire adequate yet humane protection, the **Van Karner gas gun** is the answer. Shaped and shot like a pistol, it guards as effectively as a revolver yet does not injure permanently, thus widening its use in such places as crowded banks, and streets. A large 8-page folder prepared by the Van Karner Chemical Arms Co. gives detailed information on this handy protector and points out the many applications and situations in which it is invaluable. Prices of gun and cartridges are given as well as a listing of accessories.

813. Over a thousand fasteners such as **eyelets, rivets, grommets, washers, hooks, handles, screws, etc.**, are illustrated in a 24-page booklet prepared by the Edwin B. Stimpson Company. The illustrations are actual size and are conveniently numbered for ease in reference and ordering. Several modern attaching machines are also shown, both hand operated and power operated.

814. The Vacuum Cup Metal Pulley Co., Inc., is offering a folder presenting the outstanding features of their line of **vacuum cup pulleys**, with specifications, applications, and prices. The many advantages resultant from usage of these pulleys on flat belt lines are pointed out and illustrations show main construction features.

815. "A Better Anchorage for Bolts and Screws" is a 38-page booklet issued by the Rawplug Company giving valuable detailed information on **anchors, drills, crowners and lock-crowners, drives, and plugs**, telling how each product may be applied to the best advantage. Profusely illustrated and of a handy pocket size, $3\frac{1}{2}$ " x $6\frac{1}{4}$ ", the booklet contains many tables and charts showing size of hole, anchor, and screw or bolt, and the amount of pull or holding power effected together with price lists and other valuable data.

816. A most comprehensive bulletin on **cemented carbide tools**, giving detailed recommendations for proper Carboloy grade selection, suggested speeds and feeds, and a method for determining power requirements, has been published by Carboloy Co., Inc. The bulletin groups the materials to be machined into three main classifications: steel, ferrous castings, and non-ferrous and non-metallic materials. A full page chart of recommendations is devoted to each of the classifications with specific recommendations given for a wide range of metals within each. The bulletin also is specific in regard to proper speeds to use with carbide tools. In each case a definite, safe starting speed is listed together with suggested minimum and maximum speeds to which adjustments can be made after starting the job.

(Additional listings on pages 4 and 8)

PURCHASING, 205 East 42nd St., New York, N. Y.

I wish to receive the following literature:

Numbers:

.....

Name.....

Company.....

Address.....

City..... State.....

Back of Every
NORTON Wheel...

RESEARCH
*Experiments
tests*

The past years have seen many important abrasive developments come from the NORTON research laboratories. They have solved difficult grinding problems for many—have reduced grinding costs for all. Industry has profited and will continue to profit by NORTON research.

NORTON COMPANY
WORCESTER, MASS.



» NORTON ABRASIVES «

Yours on Request

Purchasing agents will find it well worth their while to read the publications reviewed on this and the preceding pages. From among the many submitted to us, they have been selected by the editors as having greatest interest and utility value to purchasing agents.

To obtain copies, simply fill in and mail coupon at the bottom of this page.

817. In a 16-page booklet that is literally "packed with packaging ideas," the Hinde & Dauch Paper Co. illustrates and describes twelve typical examples of successful "profit packages" which are defined as "any container that helps to increase the sale of a product." The booklet is devoted to pointing out how attractive packages are important to goodwill and increased sale of merchandise.

818. A 6-page bulletin prepared by Paul Frank describes in detail a new and practical method for determining pH value in acid and alkaline solutions in a few seconds right at the tank by means of pH papers. By this method the necessary regular and frequent tests can be easily and quickly made without expensive or bulky apparatus. The bulletin gives important details on the use of these papers including their manufacture. Several charts give color ranges for the various papers.

819. The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., has just published a new engineering data book on V-belt drives. The book is divided into two parts: the first part covers standard drives eliminating the necessity of working out calculations; the second, sheave factors for designing new or special drives. In addition the book contains belt comparison tables and other general information.

820. Placing particular stress on ease of use, accuracy and safety, the 4-page folder offered by the Weston Electrical Instrument Corp. discusses in detail such features of the company's new portable clamp-ammeter as its 6 A. C. ranges, accommodation for any electrical conductor up to 2" in diameter, its magnetic circuit, clamping jaw insulation, remote indication and bakelite handle and trigger.

821. "Turning Lead Into Gold" is the title of an interesting 16-page booklet prepared by the Autopoint Company showing the many advantages and savings that can be effected through the use of mechanical pencils. The booklet is well illustrated, showing both the construction of mechanical pencils and the many types available, both general and specialized.

822. The large, well illustrated 4-page folder recently issued by The Foxboro Company contains brief descriptions of several pyrometers and resistance thermometers. Instruments described include the potentiometer recording pyrometer; potentiometer controllers for electric or air-operated control; the stabilog potentiometer controller; the mono-pivot type indicating pyrometer; the portable indicating potentiometer and the key-switch cabinet indicating potentiometer. Each type of instrument furnished as a potentiometer pyrometer can also, according to the folder, be furnished in equivalent type as a resistance thermometer, inasmuch as the instruments of one type are identical with those of the other in appearance and structure.

823. A new bulletin, No. 93-A, describing its line of automatic spout drum magnetic separators has been issued by the Stearns Magnetic Manufacturing Co., makers of magnetic separating equipment and magnetic power transmission control devices. It covers Type "LP" separators and Type "LD" magnetic drums. In addition to full descriptive matter pertaining to these magnetic separators, the bulletin also contains complete specifications of various sizes available as well as many illustrations showing applications and drawings giving structural details.

824. Within the past year the Johnson Bronze Company has developed a new bearing made of "Ledaloyl." At the present time the company has in stock over 300 individual sizes. A 10-page catalog dealing exclusively with these bearings has recently been prepared by the company giving complete size and price information. Also included in the catalog is much useful information on the bearings such as installation methods, lead content, lubrication, and load carrying capacity.

825. Large detailed photographs constitute the major portion of the 34-page catalog just issued by the Brown & Sharpe Manufacturing Co. devoted to wire feed screw machines. The photographs show in addition to the machines themselves, important details and outstanding features. The descriptive matter included gives further information on the machines and their applications.

826. Three heavy duty drifters having, respectively, screw feed, air motor feed, and pneumatic feed, are described in the large 6-page folder offered by the Worthington Pump and Machinery Corp. Large illustrations of each type are included together with detailed illustrations showing the different feed mechanisms. Important features such as solid plug piston, independent motor rotation, removable chuck housing, and end seating valves are described and illustrated.

827. Several models of portable rivet forges are illustrated and described in a recent bulletin issued by the Hauck Manufacturing Co. These oil or gas fired forges may be taken right out to the job and white hot rivets are available within three minutes from a cold start. Detailed specification tables accompany the descriptive material for each model.

828. A most complete 8-page booklet offered by the Columbia Vari-Speed Co. is devoted to variable speed controls. Large illustrations show typical applications of the controls and important features are described. In addition, two pages of selection tables are included giving catalog number, speed range, h.p. range, r.p.m. of motor, belt section, center distance and belt length.

829. Detailed information on a precision grinder for tools such as bits, dies, cams, bearings, screws, jigs, gun parts, etc., is found in a well illustrated folder just issued by The Dumore Company. This tool which is accurate to .0001", has many applications, several of which are illustrated. The many outstanding features of the grinder such as wick and tape thrower lubrication, spindle speeds from 6,600 to 38,500 r.p.m. and automatic belt adjustment are described in the interesting folder.

830. An attractive 24-page booklet which purposes to acquaint manufacturers with the company's facilities for producing castings of any size, shape or quantity, has been prepared by The Forest City Foundries Co. The booklet pictorially tells the story of the foundry, showing by means of actual photographs the many operations in the making of castings and the several phases through which the metal goes from the raw state to the finished product.

831. A bulletin recently published by Joseph T. Ryerson & Son, Inc., describes the special qualities of the company's "stressproof" steel, No. 2, a non-warping shafting and machinery steel combining high strength, free machinability and unique wearability.

(Additional listings on pages 4 and 6)

PURCHASING, 205 East 42nd St., New York, N. Y.

I wish to receive the following literature:

Numbers:

Name

Company

Address

City State

PAGE 8

PURCHASING



WELDED PIPE JOINTS IN LESS TIME with CRANE'S new socket welding fittings

ECONOMICAL to use—because they're installed with greater ease and speed—these new Crane fittings for small lines permit wider application of welded piping. Crane Socket Welding Fittings are not made from ordinary screwed fittings blanks—they're *engineered* for welding, of forged steel—for more efficient and durable service.

The Crane design of these fittings makes socket welded joints more practical for small lines. Not only do Crane fittings eliminate pipe-end bev-

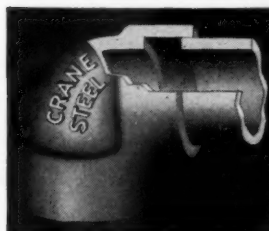
eling and prevent the danger of welding icicles obstructing the flow, but now, pipe need not be cut to accurate length—or even square.

Crane design eliminates the heavy end bands that prevent uniform heat penetration in ordinary fittings. Conforming to advanced welding technique, electric arc or gas, Crane fittings provide a superior weld—with less metal, and in less time. The joint is stronger than the pipe itself.

The Crane-Quality of these fittings assures faithful performance in any application. The soundness of their design is backed by Crane's 84-year manufacturing experience in serving industry's every piping need.

Write for Complete Information

Get all the facts on the greater efficiency and money-saving advantages of these new Crane Socket Welding Fittings. Illustrated Bulletin No. 309 gives full information on tests, sizes, ratings, prices. Mail the coupon today! No obligation.



Extra deep sockets save time—eliminate accurate pipe cutting. Liberal engagement aligns and supports pipe. Compact and light—yet strong and rugged. Only slightly larger than pipe.



Improved band design gives better heat penetration—a better weld. Run is accurately machined to inside diameter of pipe. Assures smooth flow with no pockets when pipe butts socket shoulder.



CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

CRANE CO. Pur-8-39
836 So. Michigan Ave., Chicago, Ill.
Gentlemen: I want a copy of Bulletin No. 309—"New and Better Fittings for Small Welded Lines." No obligation, of course.
Name
Address
City.....State.....

NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL MARKETS

Grab yourself a chair!



and pull up at the busiest conference on industrial advertising you ever heard of.

Two hundred controversial subjects will be discussed in clinics large and small. "How to improve your effectiveness as an advertising manager" will be one of the large clinics. The first day is Executive's Day (bring your boss).

Even at lunches you will be grouped with members and guests having identical interests.

Take advantage of low transportation rates, hotel accommodations at no increased cost and a guided tour of the industrial exhibits at the World's Fair with a day and a half left over to yourself! Make your hotel reservations early!

Some of the Clinic Subjects

FIELD WORK	PUBLICITY
PERFORMANCE DATA	MARKET DATA
DIRECT MAIL	MEASURING RESULTS
INDUSTRIAL EXHIBITS	CATALOGS
READERSHIP VALUES	SALES MANUALS
TIE-UP WITH SALES FORCE	



EXHIBITS
•
AWARDS
•
LADIES' PROGRAM
•
DINNER AND SHOW AS USUAL

National Industrial Advertisers Association
100 East Ohio Street Chicago, Illinois

2-39





All these famous companies have approved K & M INSULATIONS for their plants

Representing nearly every branch of industry, with industrial processes ranging from the production of roller bearings to the baking of chocolate cookies — these firms are only a few of the many that have used the Keasbey & Mattison Company products for heat insulations. For K & M makes a line suitable for practically every insulation need, in every industry.



By their high efficiency, uniformity, dependable quality and long life, the Asbestos and Magnesia Insulations made by Keasbey & Mattison have won the confidence of the nation's leading industries. K & M engineers, working with K & M Distributors strategically located throughout the country, can point the way to real savings in your plant, too. Why not write Dept. 603 for further details?

ASBESTOS AND MAGNESIA PRODUCTS SINCE 1873

KEASBEY & MATTISON

COMPANY, AMBLER, PENNSYLVANIA

SEE K & M's FIERY SNOWMAN AND EXHIBIT IN THE HOME BUILDING CENTER AT THE NEW YORK WORLD'S FAIR

Stronger Economic Foundation

!!

WE HAVE just released Bulletin B-135 which contains the feature study:—

“STRONGER ECONOMIC FOUNDATION”

AMONG THE sub-heads in this article will be found the following significant considerations:—

“Political Fight”

“Upswing Gaining Momentum”

“Commodity Prices Too Low”

JUST NOW this careful article, written entirely from the commodity price standpoint, should be of real interest to buying executives.

SHOULD YOU desire a copy, without cost or obligation, we will send you one—while our supply lasts.

No Salesman Will Call

McGILL COMMODITY SERVICE - Auburndale, Mass.

EFFICIENT BUYING IS THE KEY TO PROFITS TODAY

Nowadays They're *STREAMLINING* *COSTS, too!*

TODAY, industry is looking for new ways to turn out better products at a lower cost. More and more manufacturers are discovering that material and fabrication costs can be reduced through the application of American Quality Cold Rolled Strip Steel. Worthwhile savings can be made all along the line from small parts to, in many cases, the entire finished product.

American Quality Cold Rolled Strip Steel comes in a complete range of finishes, edges, tempers and widths. The smooth, eye-appealing finish that is characteristic of parts or products fabricated from Cold Rolled Strip Steel is pleasing to customers who seek beauty and utility at a reasonable price.

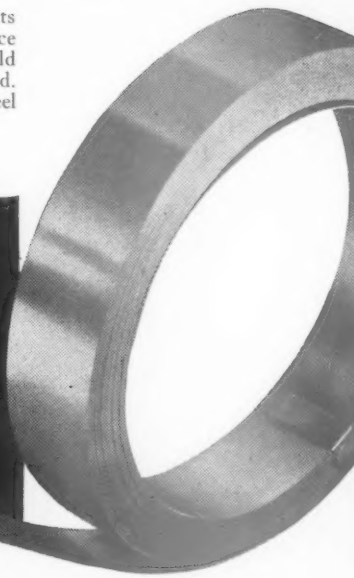
Our engineering and metallurgical departments will be glad to demonstrate to you how American Quality Cold Rolled Strip Steel can be used in turning out parts that are accurate in size, light in weight and attractive in appearance. They can show you, too, how this product can be used to streamline costs wherever high-speed, continuous fabricating problems are involved.



HERE IS A representative group of low-cost parts and products fabricated from American Quality Cold Rolled Strip Steel. Notice what an excellent appearance they make. See how frequently Cold Rolled Strip Steel is called upon where deep draws are required. Check your own products. American Quality Cold Rolled Strip Steel may help you streamline your costs.



AMERICAN *Quality*
COLD ROLLED
STRIP STEEL



AMERICAN STEEL & WIRE COMPANY

Cleveland, Chicago and New York

Columbia Steel Company, San Francisco, Pacific Coast Distributors • United States Steel Products Company, New York, Export Distributors

UNITED STATES STEEL

YOU CAN AUDIT YOUR TYPING EXPENSES, TOO



YOU check up periodically on all the important operating costs in your business.

● But the cost of everyday detail operations may be away out of line, *without your knowing it!*

● You may be using ribbons and carbons entirely unsuited to your requirements.

● For less money you may be able to get a greater output of manifold copies.

● The performance of a ribbon or a carbon paper, especially made for your requirements, may mean a gratifying reduction in your volume purchases of ribbons and carbons.

IN ANY EVENT, A CHECK-UP NOW WITH A COLUMBIA REPRESENTATIVE WILL ASSURE YOU THAT YOU ARE GETTING

LENGTH OF SERVICE CLARITY OF WRITE
LEGIBILITY OF RESULTS
SUITABILITY FOR THE WORK REQUIRED

● Columbia will "audit" your ribbon and carbon costs at no obligation. Call the Columbia office nearest you.

COLUMBIA
RIBBON & CARBON
MANUFACTURING CO., Inc.

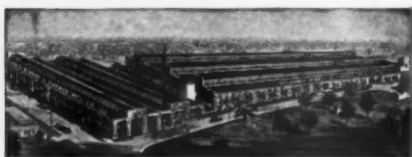
Main Office and Factory

Glen Cove, L. I. New York

BRANCHES { New York, Chicago, Philadelphia,
Pittsburgh, Cincinnati, Nashville,
New Orleans, Kansas City, Mil-
waukee, Minneapolis

—also—

LONDON, SYDNEY,
ENGLAND ITALY AUSTRALIA



F. O. B.

(Filosofy of Buying)

IN OUR EARLIEST excursions into the field of mathematics, we acquired the fixed and very comforting notion that there was an answer to every problem in the back of the book. In this issue, the old theme of measuring departmental efficiency is revived by a purchasing man who attacks the problem from the refreshingly frank viewpoint that there isn't any answer. He does, however, make some suggestions which appeal to F. O. B. particularly as providing a highly intelligent and useful approach in the preparation of an annual report to management. And what with Labor Day just around the corner, that report is going to be due before we know it.

Unfortunately, successful purchasing performance is largely a matter of what the p. a. *doesn't buy*, which comes under the head of an intangible factor, and we never did see a system that even pretended to measure it.

MAYBE IT'S THE business cycle. Just as we p. a's get the green light and find that it's OK to spend some of the company's bankroll, Congress turns around and tells the

biggest spender of them all that he'll have to go slow.

Arch-Republican commentator Mark Sullivan, describing the action of the House in declining even to debate the spending measure, likens that procedure to a p. a. telling a salesman: "Take the damn thing out; I won't even talk about it." Tsk, tsk, Mark, that must have been two other fellows.

AND NOW THAT buyers have studiously considered the situation and revised their policy so as to do some prudent forward purchasing, we can just hear Hi-Presure Pete, the demon peddler, reporting to his sales manager, "Well, I got that bird started at last."

The silk men showed a keen sense of values in remarking that \$50,000 spent for a F.T.C. investigation to rehabilitate the industry, as suggested by Pennsylvania's Congressman Gerlach, would be less effective than \$50 spent in sending the legislator for a day into the N. Y. market to see the problems of the industry at first hand.



Fabricated Piping Materials

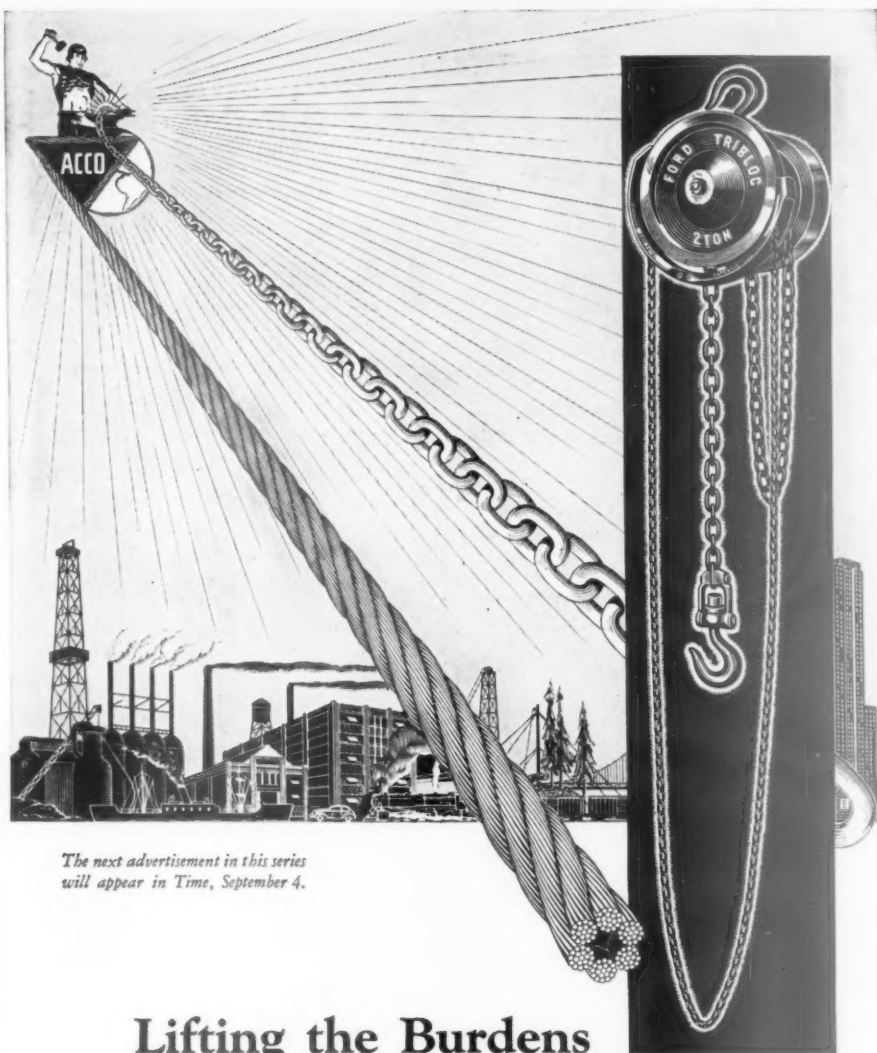
**BENDS • FLANGES • VALVES
WELDING FITTINGS
BOLTS AND GASKETS**

A complete price list of all necessary materials for fabricating piping.

WRITE FOR BULLETIN 305

**PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST.,
PITTSBURGH, PA.**

THE HIGHWAY was crowded
TO THE CURBS and we
JUST CRAWLED along, making
THIRTY MILES when we
SHOULD HAVE done fifty.
THE LIGHTS all turned
RED WHEN we appeared.
CAMP TUCKAWAY was a great
BOX OFFICE SUCCESS so that
HUMAN NATURE was about
THE ONLY kind of
NATURE THAT we saw.
WE HAD SEEN all the
MOVIES AND our casual
PARTNERS PLAYED a most
ANNOYING SORT of contract.
THE CARDS were running
PRETTY LOUSY anyhow.
THE GIRLS who went
AROUND IN shorts and
HALTERS HAD been the
VICTIMS OF poor advice
ADDING NOTHING to a
LANDSCAPE that was
PRETTY MEDIOCRE at best.
THE BABY in the
NEXT CABIN was troubled
WITH CHRONIC insomnia and
UNHAPPY ABOUT the whole
AFFAIR. THE kid who was
TRYING TO learn the
ACCORDION could only
PLAY LITTLE Sir Echo.
THE NINE narrow fairways
WERE BURNED to a crisp
AND THE ROUGH was full
OF POISON ivy and brambles,
AND THE so-called
GREENS WERE brown
AND RATTY. There was
JUST A TRICKLE of water
IN THE streams and
NO FISH in the lake
EXCEPT ONE tough old
BABY WHO chewed off
THE LINES and seemed
TO THRIVE ON a diet of
HOOKS. OUR cuisine
WAS NOT so hot.
THEY TOOK the fresh
VEGETABLES TO town and
TRADED THEM for canned
STUFF. THE tennis courts
WERE BUMPY and the lines
HADN'T BEEN chalked for
AT LEAST two seasons.
BUT STILL it was a
GRAND VACATION. For two
SOLID WEEKS I didn't
SEE ONE requisition.



The next advertisement in this series
will appear in Time, September 4.

Lifting the Burdens of American Industry

● In the thousands of places where they are at work, Ford Chain Blocks are bringing notable advantages to hoisting jobs. They are making the lifting and conveying of industrial loads safer and more economical. They are speeding up operations. Men in all branches of industry regard them as the best equipment of their kind that can be procured.

Ford Chain Blocks are quality products because they are built to ACCO standards. Designed for efficient operation and long service, they are made of the finest materials under painstaking manufacturing methods. In their construction are used the highest grade drop forgings, certified malleable castings and ACCO's own high-carbon heat-treated steel chain—a chain of great tensile strength and high elastic limit.

The fine value offered by Ford Chain Blocks is typical of the value offered by all of ACCO's 137 "Pedigreed Products."

See our exhibit, Metals Building, New York World's Fair

AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT • CONNECTICUT

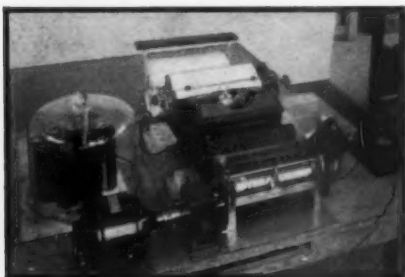


AMERICAN CHAIN DIVISION • AMERICAN CABLE DIVISION • ANDREW C. CAMPBELL DIVISION • FORD CHAIN BLOCK DIVISION • HAZARD WIRE ROPE DIVISION • HIGHLAND IRON AND STEEL DIVISION • MANLEY MANUFACTURING DIVISION • OWEN SILENT SPRING COMPANY, INC. • PAGE STEEL AND WIRE DIVISION • READING-PRATT & CADY DIVISION • READING STEEL CASTING DIVISION • WRIGHT MANUFACTURING DIVISION • IN CANADA: DOMINION CHAIN COMPANY, LTD. • IN ENGLAND: BRITISH WIRE PRODUCTS, LTD. • THE PARSONS CHAIN COMPANY, LTD. *In Business for Your Safety*

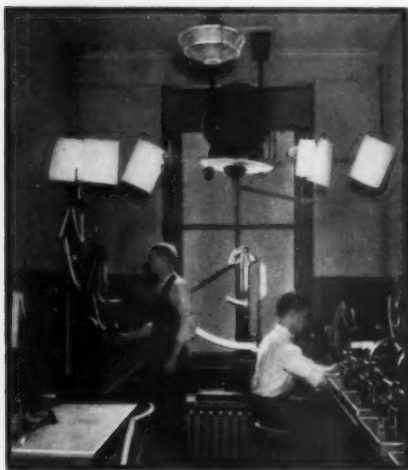
WHEN IS "Quality" EQUAL?

How E. T. L. can help the Purchasing Agent

One way by which a purchasing agent can determine equal quality is to secure information on whether or not the articles which are offered as "equal" meet the same specifications. That is where E. T. L. may be able to serve you. For example



Typewriter Ribbons. Here is a picture of a test set-up, by which E. T. L. measured the durability of typewriter ribbons. Such a check on the quality of other articles you purchase in quantity might be helpful . . . items such as . . .



Paper. E. T. L. has a paper-testing laboratory which will give you impartial facts as to quality to guide you in buying.

E. T. L. also has the facilities to check quality, in terms of given specifications, on many other products such as soap, oil, paint . . . so that you may know "equal" quality by test.



Mail

Name	Date	File
Company		
Address		
Phone		
Product or Business		
To See:		
In Regard To:		
Remarks:		

Business Card File

To the Editor:

Speaking of cards—as you do in your F. O. B. column for May—here is one I have all salesmen fill out on their first call, whether they have a business card or not.

In the "File" space in the upper corner goes the name of the product they are selling which is of interest to me. If more than one, I have the card copied and crossfiled.

I also maintain an alphabetical crossfile of salesmen's names, though only of the salesmen I am apt to call or write frequently.

These cards go into an open-top card file in my desk drawer, and serve as a quick ready reference for products, names, addresses and telephone numbers.

U. S. MACDONALD
Purchasing Agent
Snead & Company

Jersey City N. J.
May 17, 1939

Art Criticism

To the Editor:

To me, by no means the least interesting portion of your magazine each month is the full-page drawing. The July issue reached me toward the close of a particularly hectic day, when life generally

seemed hardly worth living. On picking it up, it flopped open at page 30, and a perusal of the picture promptly jerked me out of the "slough of despond" into which I had sunk.

The general get-up of the "old-timer," with the flask in his hip pocket, the features of the P. A. (I take it from the limited cranial capacity and generous mouth, lower jaw, and bay window, he was intended to be a P. A.), and the lad running for the w. c., all show a commendable attention to detail on the part of the artist. In one respect, however, the latter fell down badly. To be true to life, the outhouse door should have been hanging on one hinge.

Thanks for these pictures, for Silhouette Studies, and for the many other fine features of your excellent publication.

JULIAN G. DAVIES
Treasurer & Pur. Agt.
N. Slater Company, Ltd.

Hamilton, Canada
July 26, 1939

The appointment of JOHN M. COCHRAN of Pawtucket as Assistant Purchasing Agent for the State of Rhode Island has been announced by Preston F. Arnold, Director of Coordination and Finance.



**THANK YOU, GENTLEMEN,
FOR THE CHANCE TO PROVE
I COULD SELL AS WELL
AS DELIVER OUR GOODS!**

***Let Gaylord show you how to
add power to your merchan-
dising with containers***

Are your shipping containers selling as well as delivering the goods? They are for many concerns whose sales and advertising managers have made them a part of their merchandising campaigns.

Through close cooperation with merchandising staffs, Gaylord

master designers have recently transformed many shipping containers into hard-working sales makers.

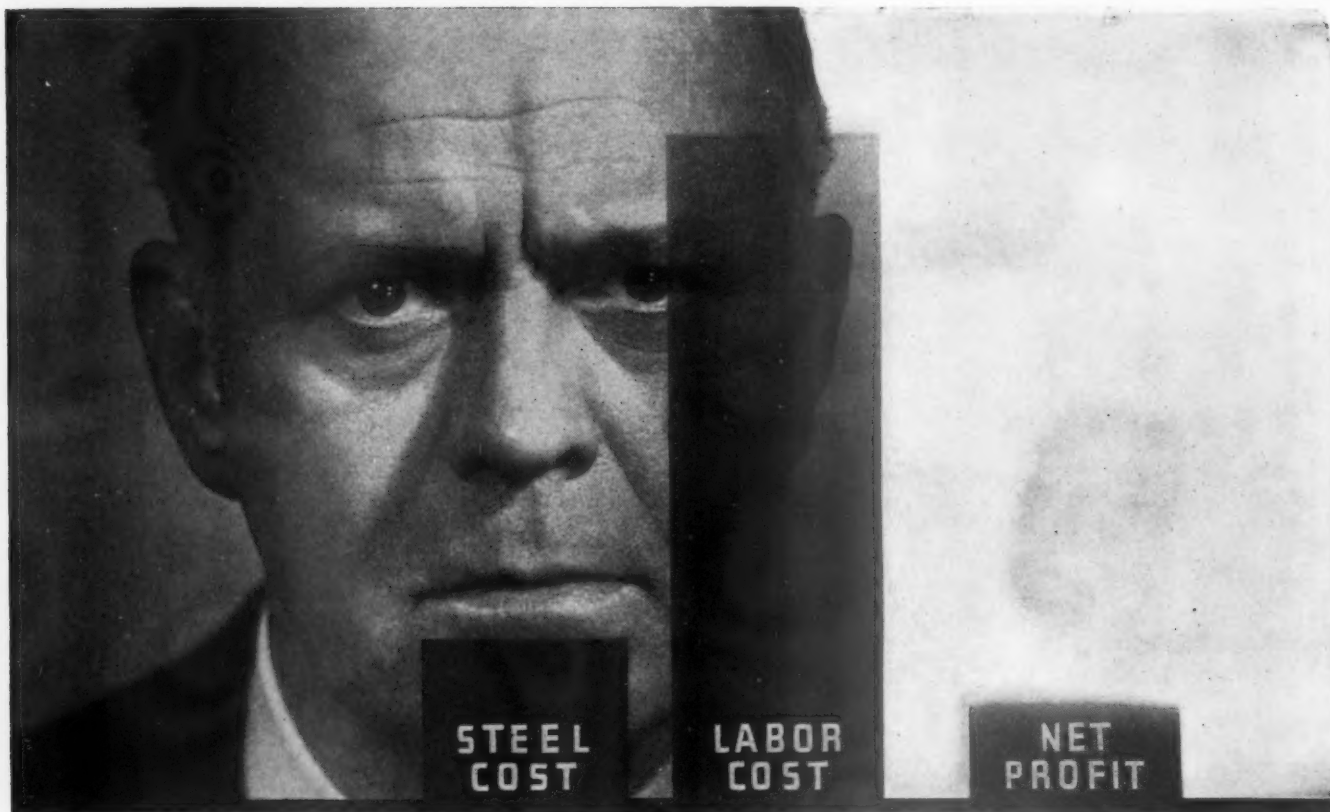
May we suggest you invite your shipping containers to your next merchandising conference? Then, let Gaylord show you how to make the newcomer make good! Phone or write our nearest office for further details. No obligation.



*Also Gaylord Folding Cartons...Grocery
Bags and Sacks...Kraft and Specialties.*

GAYLORD CONTAINER CORPORATION, General Offices: SAINT LOUIS

There's a Gaylord plant or sales office in your territory



Consider Labor Costs When Buying Steel

On most jobs, shop labor costs are the biggest single factor—and they depend to a large degree on the steel used. If bars are too hard for bending or forming—or have hard spots to break or dull tools—if some shapes are not straight—or if in the case of alloy steel the required properties are not developed by the first heat treatment—then up go costs, down go profits.

Purchasing steel that is uniform and has the properties most desirable for your particular use

often pays big dividends in the form of decreased shop costs. You do not have to pay any more for this kind of steel—so why not get it?

For several years Ryerson has been building up stocks of these better, more uniform steels. Careful selection, checking, testing and inspecting assure the uniform high quality necessary for Ryerson Certification. Try Ryerson Certified Steels on your hardest job—and check the labor costs. Many have told us that it pays.

RYERSON

Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.



Principal products in stock for Immediate Shipment include—Bars, Structurals, Plates, Iron and Steel Sheets, Tubing, Shafting, Strip Steel, Alloy Steels, Tool Steels, Stainless, Babbitt, Welding Rod, etc.

Certified

STEELS

A Milestone for PURCHASING

WHENEVER A CHANGE in corporate identity or management occurs three questions are immediately raised: (1) What is the reason for the change? (2) What is the character of the new management? (3) What are likely to be the results of the change? These are perfectly natural and proper questions. PURCHASING welcomes the scores of letters and inquiries that have come since the recent announcement that this publication has become a member of the Conover-Mast group of business papers, because there could be no stronger evidence of the close personal relationship that exists between this publication and its readers.

The Reason. PURCHASING is founded on the premise that there is need for a strong independent journal devoted to the interests of the purchasing executive and serving to interpret the viewpoint of the purchasing man in the larger fields of industrial organization and economic planning. Its success depends first and always on establishing the principle that centralized purchasing authority and competent buying executives constitute a vital force for sound management and profitable operation of industry and government. That fact, familiar to all purchasing men, is sustained by practically every open-minded survey of manufacturing and marketing procedure, but has curiously fallen short of the general acceptance which must lie at the foundation of the individual prestige, standing and success of every purchasing man. The acceptance of that idea is reflected very directly by the strength and success of the publication devoted to its cause. We are gratified at the notable progress already recorded; we are eager to accelerate that progress, for in such an advance there is tangible evidence and support of the importance of the purchasing function—a factor that contributes directly to the well-being of every individual, association, and project connected with the purchasing field.

The Personnel. The present staff of PURCHASING—editorial, research, and field representation—carries on, continuing the policies and program which have characterized this publication from its inception. They are now augmented by the superior facilities, resources and skill of a publishing organization that has not only exhibited brilliant leadership in business journalism, but has consistently shown an appreciation of the purchasing function and has made important contributions to purchasing knowledge in its own editorial columns and merchandising policies. The affiliation is a logical development that will give immediate and lasting impetus to the fundamental premise that purchasing is indeed a major concern of management.

The Effect. A wider scope of service to purchasing men as readers, carrying out studies on a broader and far-reaching scale than has heretofore been impossible; a more representative journal for purchasing men to point to as their own; a more potent voice in advancing the cause of purchasing to management; a quicker and more vital force working toward the general acceptance by sales executives of the facts of purchasing authority, leading to the prestige which is the purchasing agent's due.

We commend to our readers and advertisers the bigger and better PURCHASING which will date from the September issue.

STUART F. HEINRITZ, EDITOR

The Purchasing Agent's Part in Property Protection

For long life and lowest maintenance cost, fence materials must suit the location and prevailing atmospheric conditions, and the setting should conform to proved standards

DURING RECENT years American industry has taken rapid and effectual strides in the development and operation of safety programs, with results which loom large in terms of protection to both lives and property. Once scarcely more than a hobby of a few pioneers, protection is today a major activity in practically every well-managed business. Lives have been saved, injuries prevented and assets conserved.

In this important work the purchasing agent plays an important part, and on his shoulders rests no small responsibility. He is usually—and rightly—a member of the protection or safety committee. His recommendations to management and his orders to suppliers can and frequently do increase the effectiveness of his company's protection efforts.

As he is concerned with machine guards to prevent accidents to workers, so is he concerned with the protection of property, the safeguarding of material against loss and the security of the business against liability suits. Since industrial fencing is a proven solution to these problems, and since it is an effective barrier against careless or undesirable trespassers and malicious intruders, it is the purchasing agent's responsibility to know the facts about fence specifications and erection methods.

Wire fence not only affords complete protection, but is ornamental and permits the safe use of space right up to the property line

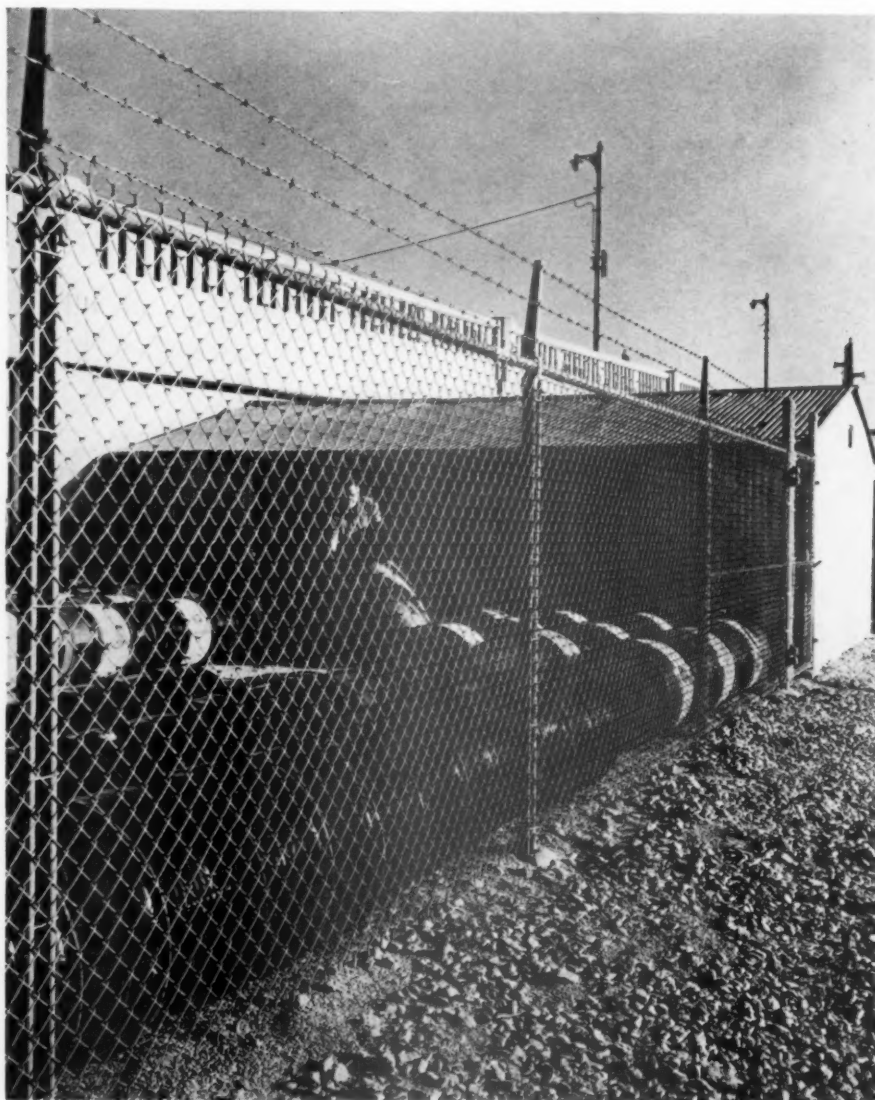
Photographs by courtesy of Page Fence Association

W. H. BLEECKER

Page Fence Association

Chain link factory fencing may run from three feet to eighteen feet in height. It may or may not be topped with barbed wire. It may be one of four different fence metals chosen for most effective resistance to destructive local atmospheric

conditions. It may be of wire gauged from the lightest up to almost a quarter-inch in thickness. Or it may be a combination of all these various specifications, according to the protective assignments at various points in the boundary line.



The average or "typical" factory protective fence is metal chain link, seven or eight feet in height, topped by three strands of barbed wire held by extension arms attached to metal fence posts. These arms may be either vertical or slanted inwardly or outwardly to hold the barbed wire at an angle.

Chain Links, Posts and Setting

The chain links are two-inch mesh of 11 gauge, 9 gauge or 6 gauge wire. Posts are of metal, either wing-channel, H-beam or tubular, set at 10-foot intervals to a depth of 3 feet in bell-shaped concrete footings. The concrete "bell" resists lift and side pressure. It is usually domed slightly above the ground to shed water away from the post metal. Such setting is indispensable to fence stability and should be handled by expert fence-erection crews.

Gates are of four types—walk gates; swinging gates; double-swinging railroad gates; sliding gates—and may be situated anywhere in the fence line. Great care must be taken, however, to anchor and brace all gate and end posts firmly as the fence-fabric tension begins and ends at these points.

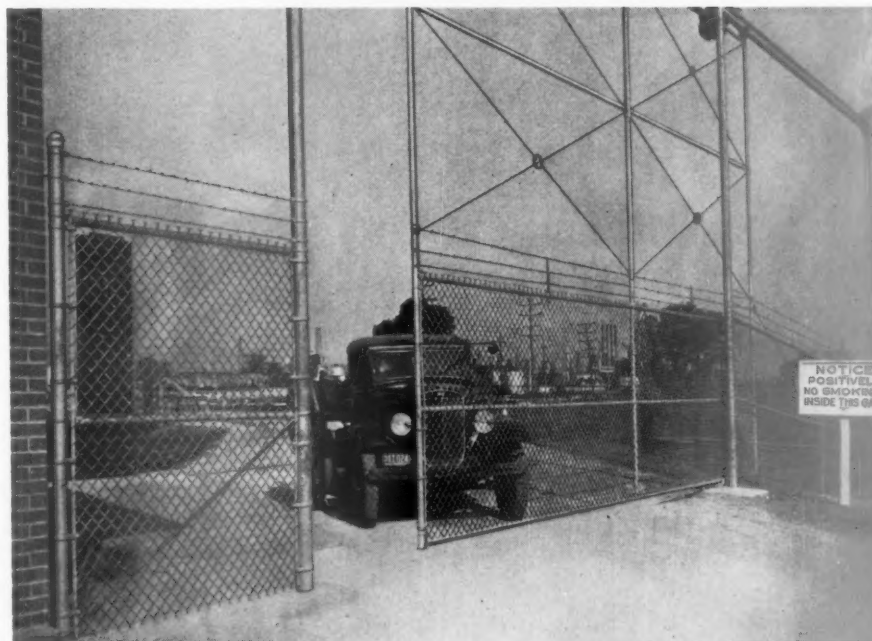
Fencing Metals

Science has made many forward strides in providing longer life for property fencing metals. Also, it has discovered that some metals have much longer life than others under the various destructive atmospheric conditions peculiar to different localities. Such conditions include salt spray, alkali, acid or other chemical fumes—often carried long distances in the air from neighboring oceans, mineral soils, chemical plants or factories.

Any consideration of chain link metal fencing for factories should include a study of local atmospheric peculiarities and the selection of the metal most resistant to any destructive condition discovered. In many fencing installations such a precautionary study of air conditions results in adding many years to the effective life and appearance of the chain link fence selected.



Standard gate designs meet every normal need



Copper bearing steel fencing with sufficient weight of zinc galvanizing is the most economical chain link fencing for all localities *that are favorable to its use.*

While various technical methods are used by different manufacturers in the application of the protective zinc coating—including hot-dip and electro galvanizing—the most important considerations in purchasing concern the thickness, evenness and weight of zinc applied and bonded to the basic metal.

Former standards of zinc application required but $7/10$ -ounce to one ounce of zinc coating per square foot of wire. Leading fence manufacturers today, however, have set a minimum of 1.2 ounces of zinc coating per square foot as the least requirement for effective weathering protection, some recommending up to 2.4 ounces—double the minimum.

Aluminum woven wire fencing

combines to a high degree corrosion resistance, strength, low maintenance cost and high decorative value. Its light weight (approximately one-third the weight of steel) also results in a considerable reduction of weight on the supporting structure.

Aluminum wire, being composed of corrosion-resisting material throughout its entire thickness, makes it unnecessary to provide any exterior coat such as paint or galvanizing. This eliminates any necessity for periodic painting after erection, thereby reducing maintenance cost to a minimum.

Stainless steel is another fence metal possessing distinct superiorities. It provides a fence of sheer beauty, immune to rust without a protective coating, with tensile strength four times that of low carbon steel. It is possible to use much lighter gauge stainless steel

Continued on page 47

The Efficiency of Purchasing

IN THE CONDUCT of their daily lives, there is in the majority of men a desire to in some way measure the results of their labors, and so to correlate effort and result that they may be guided on other similar occasions, either to reduce effort and obtain equal results, or to maintain or increase effort to accomplish greater results. In any case, there is an ever-present tendency to make comparisons with existing standards or with past performances; and it is this habit of comparison that has been responsible for much of the progress of the race from its earliest beginnings.

This "desire to measure" is manifested in various ways—the savage counts the skulls of his enemies, the miser his hoarded gold, the athlete considers his time or distance, the manufacturer his output and his costs, the engineer the pounds-of-water-evaporated-per-pound-of-coal. These, of course, offer tangible bases, and mathematical calculations can be made, the compared results of which show definite relations between past and present performance, or between actual and ideal or standard performance.

There is also a great variety of human effort that can by no means be evaluated in set terms and where no method of setting standards exists, but where a definite judgment of results secured can nevertheless be made. These cases do not controvert the principle of measurement but are decided by consideration of intangibles; whereas the type of performance previously referred to may be directly compared on the basis of number, dollars, minutes, or pounds. Who can mathematically determine the efficiency of the work on a landscape painting, a poem, an opera, or a quick throw to first base? It is clear that the work was done either well or ill, but it is certain that the various steps leading up to completion of the work cannot be definitely evaluated.

Much of the national excellence in manufacturing may be credited to this habit of comparison. Taylor, Gantt, Emerson and their contemporaries were perhaps among the first to reach the public ear and eye in bringing attention to the equation

$$\frac{\text{Actual Performance}}{\text{Standard Performance}} = \text{Efficiency}$$

and from their work emphasis came to be laid on so-called "Scientific" management. Later came (and disappeared!) public interest in the Technocrats, a distantly-related group, but it is safe to say that for a very long period before Taylor, the evaluation of effort was given either conscious or subconscious consideration.

It is a commentary on human nature that times of stress bring special interest in efficiency and economy, and in our day these manifestations have been particularly in evidence during the World War and in the two

Since no complete and practicable measure of departmental performance has been found, it may be well to take "test samples" of the results

T. W. ESTABROOK

depressions which have followed it. Men in charge of great and small affairs, in their desire to properly discharge their obligations, have sought for means to accurately determine measurements by means of which they could produce proof, to themselves and to others, that their work had been done well, and which could also be used in gauging the value of work to be done in the future.

In this search for "yardsticks," the scientist and the accountant have done yeoman service in many branches of industry. We have today a far more efficient procedure in manufacturing, finance and sales because of their efforts, and it is no reflection on the experts, or on anyone, that exactitude in evaluating the extremely important work of purchasing is yet to be secured.

The omission of rating methods as applied to purchasing cannot be laid at the door of those entrusted with the responsibility for spending corporation funds, however. In that group are men who are fully as eager to measure the results of their own labors as any interested parties could be, and it is significant that the National Association of Purchasing Agents has sought, in conjunction with the National Association of Cost Accountants, some definite procedure by which a measurement of purchasing efficiency may be made. That no wholly feasible plan emerged from that study in 1931 was not through lack of thought or search on the part of scores of accountants and purchasing agents who gave the subject their consideration.

The modern purchasing agent (or "Procurement Officer," as he might more accurately be called) sees as his mission the provision of materials and services to his organization in relation to five aspects: namely, at the proper time, of the proper quality, in the right quantity, at the right price, and at reasonable expense for the operation of his department. In every exercise of his function he must face these qualifying adjectives of "proper," "right," "reasonable" or their synonyms, as all of them are variable factors in the "efficiency" equation, whether defined or simply understood. What constitutes "Standard" for each aspect at the time of one consideration of purchase, however, may be entirely different from the same factor at a later consideration of purchase of the same material; which is to say that all conditions surrounding two requirements of the same material may vary to a wide extent.

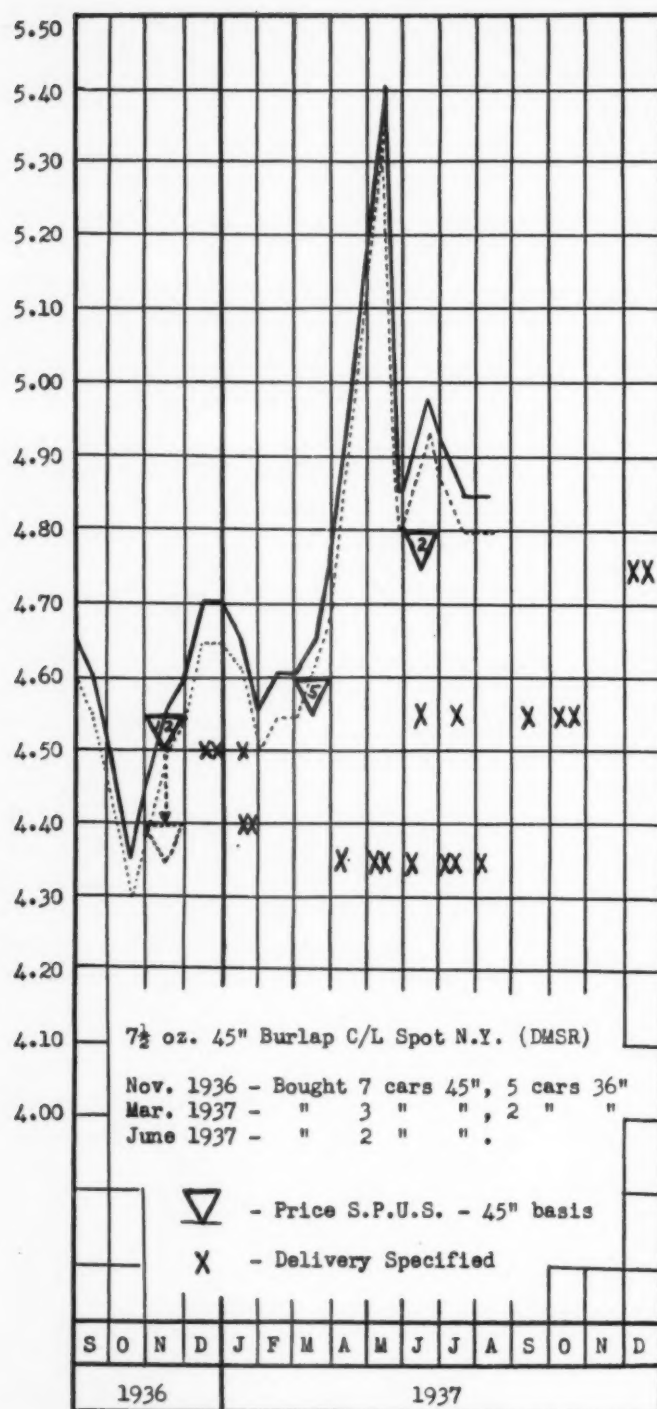


Figure 1. Transactions in burlap
 Results are tabulated on opposite page

As a single example of the possible variation in the five aspects referred to, let us consider that of "proper time." In one instance, let us assume a purchase of some standard material, made when usage was normal in volume, stock on hand was at the predetermined re-order point, supplies in sellers' hands were ample, and transportation was effective. These four factors would then operate to produce a requisition-to-delivery period of, say, 8 days. Therefore, receipt of the material eight days from the date of requisition would constitute 100% "efficiency of delivery time." Now, assume that at the time of a later purchase, a breakdown in the mill required an emergency repair job, using the material in

question, and an order was placed to bring in extra supplies. Should either an error in count be made by the stock clerk (not responsible to the procurement officer), a previous order by some other customer have exhausted the seller's stock, or a transfer be missed at some railroad junction-point, or even should a combination of these difficulties occur, the resulting figure for "efficiency of delivery-time" would not be even close to 100%! In such a case, if this figure is taken into consideration with the other four, in determining the total efficiency of procurement, the eventual rating will be in error, representing as it does a loss of efficiency over which the department has no control.

In attempting to compare mathematically the performance of the Purchasing Department of one organization with that of another, even in the same line of business, it is very evident that a great deal of difficulty will be found. Size, variety and grade of products, responsibilities of the department, relations with management, etc.,—all vary to a greater or less degree between any two companies, and are important modifiers of the factors in the efficiency equation. When it comes to comparing the results in dissimilar businesses, the attempt is hopeless. A public utility operation, for instance, might have the greater part of its outlay for coal, handled on contracts, with time to spare, by one man. It would be difficult to compare the costs of operating that department with one in a chemical manufacturing organization where many and varied raw materials must be bought, in generally active markets.

Also, the attitude of management toward forward buying markedly influences the opportunities of a procurement officer to make substantial savings for his company. There is considerable confusion even in the definition of this proceeding, as the line between speculation (which, by most authorities on purchasing, is viewed with horror and an uplifting of hands) and forward buying, and its opposite, so-called "Hand-to-Mouth" buying, involves some finely drawn distinctions. Yet in other chapters of the textbooks there is usually quite a bit of space allotted to the close attention to be given to commodity markets!

In many instances, forward buying does not involve inventory increases. Purchases as of burlap, wood pulp, and other commodities may be made for future delivery at the going price, with no carrying charges involved. In other cases—of rubber, for example—the carrying charge per month for advanced positions of delivery is small, and as the swings of the market are appreciable, the change in price due to market conditions is many times greater in active trading than the carrying costs involved.

In general, the greatest field for the able and informed procurement officer is, on advancing markets, in securing a considerable part of his expected future requirements at the then present price; and conversely, on declining markets, running from inventory and withholding orders with the expectation of buying at a later date at a lower price.

Certainly, if after careful survey of production requirements and market factors, a procurement officer feels that a shortage will later develop, preventing him from getting supplies, or if market factors point to a rise in price for the future, he is negligent if he does not place orders for delivery at the then present price; and if he sees clear indications of breaking prices, does not hold back all possible purchases to be later made at lower figures.

"If this be speculation, make the most of it!"

The results of forward buying are usually quite easy to determine, and in the search for methods to determine the efficiency of purchasing, provide comparatively clear indications of success or failure. Without reference to hedging (which, after all, applies to a limited number of general commodities) the course of published market prices offers easy comparisons, and it can be shown either graphically or mathematically whether the line of reasoning leading up to corresponding action was true or false. As an example, rubber latex, a widely used commodity, is generally priced to large users on a uniform differential above ribbed smoked sheets. Spot and future prices on the latter are published daily in the trade papers, and purchases of latex can be made at any time for delivery over many months in the future, at definite prices for each "position" or month of delivery. It is thus easy to show, on a given purchase for future delivery, at the times when actual deliveries are made, by comparing the "spot" price at that time with the price paid on contract, whether the procurement officer has gained or lost by his action, and to what extent. If it is reasonably clear that the material *will at some time be used*, and the transaction is therefore removed from the classification of gambling (wherein the purchaser must later *sell in the market*, at

a price higher than that which he paid, in order to make a profit) the operation is an entirely legitimate one, and is part of the proper course of action of all procurement officers who understand their responsibilities.

As an illustration, the graph in Figure 1 gives a picture of purchases of burlap for future use. The material had been specified by the consuming plant as 45" wide. A visit by the procurement officer to the dock where the packages were being loaded showed clearly that only a part of the demand required 45 inch, and the balance could be furnished 36" wide, resulting in a saving in material, a better locking package, and a slight reduction in labor cost of packaging. The order was placed accordingly, and the table in Figure 2 shows both the saving through the reduction in width, which was the direct result of the departmental effort, and also the gain due to anticipating the rise in price and the resulting purchase while prices were at a low point.

To mathematically rate the efficiency of a purchasing department, its performance in every important field of the work must be fully considered, and the successes or shortcoming of each performance must be credited or debited in casting up its final account or rating. It is not so difficult to determine whether a certain result is a success or a failure, but to place a definite value on it for rating purposes is quite another matter. A life preserver under the berth on an ocean liner may show on the ship's books as worth one dollar; circumstances may arise when the same piece of equipment would be worth, to a passenger who needed it, many times its book value. The same reasoning can be applied in many cases of lack of material or supplies, urgently needed by a plant, failure to receive which may have resulted in complete shut-down or disaster. In such a

Continued on page 60

FIGURE 2. RESULTS OF BURLAP CONTRACTS

SEPTEMBER, 1936 AND MARCH, 1937

				SAVING				
Date of Delivery	Width	Price Per 100 Yards	Market at Delivery	For Width		For Market		Total
				Per 100 Yards	Total	Per 100 Yards	Total	
Sept., '36	45"	4.50	4.625					
Dec.	36"	3.70	3.75	.80	560.	.05	35.00	595.00
	45"	4.50	4.575			.175	122.50	122.50
Jan., '37	36"	3.65	3.85	.75	525.	.20	140.00	665.00
	45"	4.40	4.675			.275	192.50	192.50
Apr.	45"	4.35	5.025			.90	630.00	630.00
May	45"	4.35	5.36			1.01	707.00	707.00
	36"	3.60	4.40	.96	672.	.80	560.00	1,232.00
June	45"	4.35	4.955			.605	423.50	423.50
	45"	4.55	4.955			.405	283.50	283.50
July	45"	4.35	4.825			.475	332.50	332.50
	36"	3.60	4.00	.95	665.	.40	280.00	945.00
	45"	4.55	4.825			.275	192.50	192.50
August	36"	3.60	4.00	.95	665.	.40	280.00	945.00
Sept.	36"	3.75	4.00	.80	560.	.25	175.00	735.00
Oct.	36"	3.75	4.00	.80	560.	.25	175.00	735.00
	45"	4.55	4.80 (est.)			.25	175.00	175.00
				\$4,207		\$4,704.00		\$8,911.00

SILHOUETTE STUDIES

41: Harry Fenner

PERSEVERANCE WAS REWARDED when the new Executive Committee of the N.A.P.A. selected Cincinnati as the 1940 convention city. This was the sixth successive year in which the invitation was extended, and there was no room for any lingering impression that the buyers of the Queen City of Ohio were perfunctory in their desire to serve as hosts to the national gathering. Previous adverse decisions, though they had been keenly felt at the time, did not discourage the Cincinnati Association men, nor dim their enthusiasm and earnestness. They had proved themselves good losers. With unfailing good nature and renewed determination, they marshalled their facts again and retold their story, more cordially and more convincingly than before, and won. Now, and in the months ahead, that same hospitality, enthusiasm and determination will be directed toward making the Twenty-fifth Convention a memorable one for all purchasing men.

There have been many spokesmen for the cause over these years. In the parlance of the national game, the credit of being the "winning pitcher" goes to Bill Reis, who presented the story so ably and successfully at San Francisco, and who is already hard at work as head of the general convention committee. But never far in the background, planning and working quietly but consistently and effectively to attain one of his most cherished ambitions for his city and his association, has been Harry Fenner.

One of those who sponsored the original invitation, and campaigned for it vigorously during his recent term as National Vice President, he has never let it be forgotten that Cincinnati is sincere in its oft-expressed desire and eminently qualified to carry it through. Appropri-

ately, he will serve on the convention committee as vice chairman, thus continuing in a role and a capacity that has been his these many years. He's a grand "backer-upper" and a tireless organization worker, and his presence in this capacity is a double assurance of strength and success in the undertaking.

HARRY FENNER is an ardent and loyal representative of his city, which has an unusual reputation for local pride. He was born there, June 19th, 1882, close to what is now the heart of the manufacturing district but what was then a pleasant residential area. The sixth in a family of ten children, he acquired at an early age the virtues of co-operation, getting along with people, working hard, and accepting responsibility.

He attended the public schools, through one year of high school, until at the age of thirteen he went out to get a job. After a brief experience as a bookbinder, he entered into a four-year apprentice contract to learn the machinist's trade at the Lodge & Shipley Machine Tool Company, at the munificent wage of two dollars a week. The apprentice system is a long, slow grind for an ambitious youngster. It takes patience, persistence and vision to see it through. But for the lad equipped with these traits it offers an opportunity for sound and thorough training. Harry saw it through, and finished his high school course besides, by attending the evening sessions.

At the end of his four years, not yet out of his teens, he had a trade and a fund of first-hand practical knowledge that has been an invaluable asset in his later business life. Though it is now a good many years since he actually worked at a

lathe or a machinist's bench, his intimate familiarity with materials, design, and methods of operation has been constantly brought into play as he has been buying for the machine tool industry.

In 1901, he went with the Cincinnati Shaper Company as a machinist. He has been with that company ever since—a record of nearly four decades of continuous service and increasing responsibility. Those who rant about the turnover in modern industry would do well to examine such a personal case history before leaping at generalizations.

His progress in the organization was a normal one: from machinist to foreman, from foreman to inspector. From inspector it was a natural step to take charge of rough and finished stores, and in the loose organization of purchasing that characterized the pre-war days, it was also natural that as storekeeper he should do a good deal of the buying. His aptitude in this latter phase of the job, supported by his knowledge of materials, shaped the course of his ensuing career with the company.

THE WAR-TIME BOON of 1917 was a period of intense activity for machine tool builders, and a period of peculiar difficulties attending the procurement of supplies, both from the material and traffic angles. The company recognized the need of organizing purchasing procedure and authority in line with the demands of the times. In 1917, Fenner was given the assignment of setting up the new department, charged with the responsibility of purchasing, as well as managing both incoming and outgoing traffic. Starting from scratch, save only what his own experience had taught him, he carried out that assignment so ac-

Continued on page 45



2: Characteristics of the Chassis

R. E. PLIMPTON

MOST MOTOR VEHICLES are a composite product. The chassis is of separate design and construction, and to it are added the body and certain accessories. In the case of the heavier vehicles, say of 2 tons or greater capacity, many manufacturers build the chassis only, and the buyer secures the body from other sources. These heavier chassis usually include the cab, with horn, windshield wiper, rear-vision mirror and similar fittings. But with passenger cars, pick-up or delivery trucks and other lighter vehicles, cab and body are an integral structure, and the complete chassis, cab, body, are assembled and sold as a unit by the vehicle manufacturer.

In any event, the chassis is a major factor to be considered if the unit selected is to meet requirements as regards load capacity, performance, economy and specific utility. The lighter vehicles, often purchased almost on an over-the-counter basis, vary in size of engine, wheelbase, tire equipment. These and other factors should receive close attention, to insure satisfactory operating results.

Selection of the right chassis for a particular job may demand the advice of an engineer or operating man specializing in motor-vehicle operation and maintenance. Manu-

facturers' representatives as a rule are well versed in the application of their products. The assistance and recommendations of both these specialists, in and out of his organization, will be sought by the alert purchasing agent. In addition he will keep abreast of the broad developments in the industry. The purpose of this article is to discuss the more important chassis characteristics; not to take up technical matters more properly of concern to the motor-vehicle specialist.

As the writer indicated in the previous article, the passenger car is likely to be designed primarily for the individual owner and secondarily for the fleet operator, while the reverse is more often true in the case of the truck.

The average fleet operator, if he uses passenger cars in any great number, wants a simple chassis, free from "gadgets" and automatic devices, chromium plating, fancy instrument panels, accessories; in short, from all details that invariably increase operating costs. An approach to such a chassis is furnished to some extent by the so-called standard (as distinct from de luxe) models, and perhaps even more by the economy models offered by certain car manufacturers. The latter are designed to decrease fuel operating costs, by the use of a

smaller carburetor and intake manifold, and a lower rear-axle ratio, than those fitted on cars offered the general public.

Others buy conventional designs of passenger cars, for employee service, and install minor accessories, in the interests of greater economy and safety. The throttle movement may be limited, by a "stop" device, to about one-third to one-half that provided by the maker of the car, the main purpose being to increase gasoline mileage. A governor may be applied to the engine, to limit the road speed of the car. Or both stop and governor may be added, the combination to give fuel economy plus adequate power and acceleration.

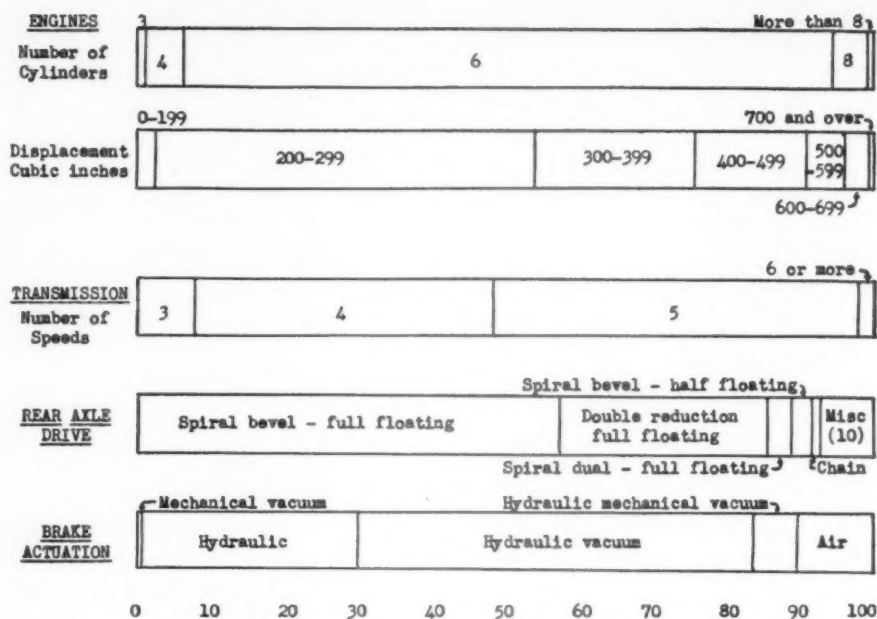
But whether the fleet operator buys economy models or adapts the conventional designs of passenger cars, his wants seem to run contrary to those of the individual car owner. For the latter the industry is planning cars with increased performance, better appearance, without increase in first cost. The fleet operator on the other hand would like cars with less performance or ability, for the sake of reduced operating costs. It is possible however that the increased first cost of such cars would more than offset the decrease in operating costs; this because the design

avored by the fleet operator would have a small sale, in comparison with the type produced for the larger individual-owner market.

Even with the light trucks, of 1 ton or less capacity, some fleet operators believe a design with reduced performance would be desirable. In recent years the decrease in body weights and the increased power and ability built into such light trucks have made it possible to use them for the same payload formerly carried on 1½- or 2-ton trucks. The extent to which this is done is suggested by the factory-sales statistics. From 1932 to 1937 sales of trucks by factories in the United States and Canada increased from 245,000 to 947,000 units. In the first year, chassis of less than 1½-ton capacity represented 32.9% of the total; those of 1½ and less than 2 tons, 58.8%. But in 1937 the first group had increased to 42.5%, while the second had decreased to 46.4%.

The increased payload carried on lighter trucks also raises a question as to meaning of the conventional tonnage rating of trucks. As a matter of fact, it is merely a generalization, an attempt to establish the maximum load to be carried under average conditions. Under one set of conditions this maximum may be exceeded, under another it should be decreased, with equally good operating results. The tonnage rating served fairly well however when the vehicles were operated for the most part on city streets at low speeds.

For present-day requirements a more closely determinable method of load rating is essential. To provide such a method the gross vehicle weight (G. V. W.) has secured wide acceptance. This represents the total weight of the vehicle ready for service, including the "wet" chas-



Per cent of listed models - Two-Axle Truck Chassis
Some important trends in automotive design

sis, with cooling system and fuel tank filled, the body, and the full load to be carried. With gross vehicle weight and certain basic specifications known, the engineer can estimate fairly accurately the speed of the loaded vehicle in the different gears, on various grades, and for particular road surfaces. This of course is a real advantage in obtaining a vehicle adequate for a particular service or performance.

Thus the chassis now on the market may vary from ¾ to 15 tons load capacity; or when rated in terms of gross vehicle weight, from 3,500 to 50,000 pounds or more. The heavier loads mentioned apply to vehicles designed for highway operation. Still heavier loads can be handled on chassis furnished for off-road service, possibly of the three-axle (six wheel) or tractor-trailer types.

Current offerings of highway vehicles include a great variety of chassis models. In the two-axle

rear drive chassis alone more than five hundred models are listed this year, by thirty-five different manufacturers. Nearly one-fifth of these are of the so-called cab-over-engine design. Many others are for use as tractors.

Dating back to pre-war days, the cab-over-engine construction has been rejuvenated in last decade to satisfy the demand for a shorter and more compact vehicle, to increase ease of parking and maneuverability in congested city streets, or to give additional loading space within legal limits of length on rural highways. At first the design was applied to the heavier truck chassis, but in the last year or two, 1 to 1½ ton vehicles of this type have been built by several makers.

The effect of placing the engine and driver's seat closer together has been illustrated by a prominent truck engineer, as follows:

	C.O.E.	Conventional
Body Length, Ft.	16	16
Wheelbase, In.	145	200
Overall Length, In.	273	305
Turning Circle Dia., Ft.	50	74
Front Bumper to Axle, In.	53	30
Gross Vehicle Weight, Lb.	26,000	24,280
G. V. W. on Front, Percent	32.5	27.8

Continued on page 42

No. 2 in a series of articles on the basic features and recent developments in design and operation, essential to efficient procurement of automotive equipment.

Next Month: Legislative Restrictions

COST vs. PRICE

in Finished Steel

EARL R. JEWELL

Detroit

Despite steadily rising costs, a dollar buys more steel today because competition in this industry has been on the basis of quality and technical progress rather than on price alone

IN AN ANALYSIS OF Dr. Tucker's reasons for price rigidity (*American Economic Review*, December, 1938) R. C. Wood prefaced his discussion with the words: "The fact that there are offsetting conditions, such as changing quality of product, may make questionable the exact sense in which it is reasonable to say that prices are now more rigid than formerly." The truth and importance of this statement becomes evident when one considers the changes that have taken place in the steel industry in the last fifteen years.

During the World War, H. W. McQuaid and E. W. Ehn, metallurgists for the Timken Roller Bearing Company, discovered that when a number of heats of steel made to the same specifications, and all of approximately the same chemical analysis as ordinarily determined, were subjected to the same heat treatment, a number of heats showed the desired physical properties and the remainder did not. They observed certain characteristics of the micro-structure of a heat of steel that enabled them to develop a test which made it possible for them to predict the manner in which a particular heat of steel would respond to a standard heat treatment. The first paper describing their investigations appeared in 1922. Their test, which was to have almost revolutionary consequences, will be designated in this paper as the Grain Size Test. Having discovered the significance of grain size characteristics, the next problem, not yet completely solved, was how to control grain size.

Mr. McQuaid has said that as recently as 1924 there were seldom more than four respects in which a heat of steel had to be satisfactory in order to be accepted by the consumer, namely:

1. Analysis. (Compared to present day standards, a rather wide variation was permitted. Carbon content might vary to 10 or 15 points, each point being one-hundredth of one percent.)
2. Size.
3. Surface.
4. Soundness.

Steel satisfactory in the above respects often varied in response to heat treatment and in machining operations. Lately, he says, we have realized that many troubles are the direct result of variations in melting

practice. A specification to be satisfactory must cover these variations, heat to heat. This is the function of the Grain Size Test. He mentions cases where, using a carbon steel with manganese on the high side (.70 to .90), some parts should be shallow hardening to avoid cracking while quenching, while other parts (i. e., starter rings) made of the same steel needed maximum hardenability. He states that "actual instances of a transfer of accounts could be cited" because of the inability of one steelmaker to give a satisfactory product by varying at will the depth of hardening and grain growth characteristics of each heat.

For reasons which it is beyond the scope of this paper to discuss, the steel at the top of an ingot is less pure chemically and more prone to shrinkage cavities ("pipe") which render steel unfit for use. Therefore particular attention should be paid to the phrase used by Mr. Mathesius, "limit the yield of acceptable product." It means that when any chunk of iron containing a little carbon would pass as steel, a steelmaker might tap 100 tons of liquid steel from a furnace and, after solidification and rolling, might have 90 tons for sale. At present, the greater rigidity of consumers' specifications frequently necessitates the use of hot tops, costing about \$1.00 per ton extra, a longer time in the furnace, more lavish use of limestone and deoxidizers, and a higher percentage of discard. Today, the yield or percentage of steel tapped that can be applied on the order is lower than formerly, often falling below 80 tons sold of each 100 tons tapped. The entire cost of producing the heat must be borne by these 80 tons.

In line with Mr. McQuaid's comments, the writer recalls a Michigan motor company that was buying gear steel from an Ohio company and plain carbon steel for crankshafts and other parts from a Pennsylvania company. Each mill was given two specifications which differed only in carbon ranges, which overlapped, and whose sum was somewhat greater than 5 points. While giving the mills an outlet for any steel whose analysis fell within these fairly liberal ranges, the consumer insisted that bars shipped for conversion into transmission gears or crankshafts should fall within a 5 point carbon range when samples were properly taken from the bars, when the samples were

properly analyzed, and when a proper interpretation was placed upon the results.

Higher Costs for the Producer Mean Lower Costs for the User

The Ohio company, making steel by the best possible practice, involving the use of hot tops and big-end-up molds, met the specification consistently. The Pennsylvania company, having neither hot tops nor big-end-up molds, failed to meet the specification to the satisfaction of the consumer and finally lost crankshaft steel business to a mill operated by the Ohio company. Here is a case where a "transfer of accounts" resulted from the inability of a mill to match its competitor's product. Incidentally, prior to 1926, the motor company in question used an alloy steel for its crankshaft. The improvement in the quality and uniformity of carbon steel, along with an improved knowledge of design, made it possible for the company to use a carbon steel, bars of which cost, at current prices, \$34.00 per net ton less. In recent years there has been a tendency to buy rounded square billets from 4 to 6 inches square for forging into crankshafts. By buying Forging Quality billets, the savings over the alloy analysis formerly used would amount to \$37.00 per gross ton.

This experience is typical of the sort of thing that has been happening throughout the metal working industry. In the field of cold heading wire, F. J. Oliver, Associate Editor of *Iron Age*, has pointed out that these improvements have enabled manufacturers to replace machining with cold heading and thread rolling operations with savings that have at times run from 25% to 89%. He adds: "Formerly all upsetting was done hot, but largely because of the improvement in materials, most of the commercial metals and alloys are now malleable enough at room temperature to withstand plastic deformation without failure and frequently without the necessity of subsequent heat treatment."

He adds that now, in contrast to the situation as it existed 15 years ago, the steelmaker is expected to:

- A. Supply metal that will react in a certain manner when treated in automatically controlled equipment, and the reaction must be uniform day to day and heat to heat.
- B. Produce alloy carburizing steels showing practically no grain growth or distortion after quenching from the box.
- C. Give steel that won't resist grain growth (in normalizing) to get machineability and yet won't be so coarse grained as to distort much and harden too deeply.

(Mr. McQuaid states that there are specifications in force at the present time that are so narrow one must select special heats or go beyond commercial extremes in the melting shop.)

He concludes by saying that some companies can do A, B, and C (as outlined above) well for carbon steel.

Others don't know how or can't do it commercially. They will lose in markets where the steelmaker is responsible for the performance of the steel.

Mr. Walter Mathesius, at one time General Superintendent of the South Chicago Works of the Illinois Steel Company, said that when Bessemer steel first replaced wrought iron in the nineteenth century, steel was just "steel." Its quality was supreme, no matter how inferior it may have been to the steel of today. It accelerated the conquest of the West and assisted industrial growth. Not until many years later, when the normally available steel supply approached the demands of a seemingly unlimited market, did selection of steel by grades and distinction by properties and by analysis become customary outside the tool steel maker's domain. He adds: "There are programs today where the testing of a single set of samples selected to represent a single heat of steel requires more than two man-months of laboratory work." (The writer has been told that the Caterpillar Tractor Company spends \$250 testing one heat of 3 1/2% nickel steel.) Mr. Mathesius continued by saying that they must learn to control steel manufacture so as to control and reproduce the characteristics associated with:

1. Grain size and quench hardening.
2. Cold rolling and cold forming.
3. Aging.
4. Welding.
5. Enameling.
6. Tinning.
7. Impact and fatigue resistance.
8. Micro-cleanliness.
9. Machineability.
10. Depth of case and resistance to spalling.
11. Uniform soundness, strength and toughness (in rails and structural shapes.)

He adds that present economic demands cannot afford to tolerate excess cost and waste of extra weight and high safety factors. Note the present demands by fabricators or structural materials and plates in steels of higher ultimate strength. Apparently the change is largely one of chemical composition. Actually, these new commodities must meet stricter standards of constancy, reliability and soundness.

These features require more accurate manufacturing control, limit the yield of acceptable product, and increase production cost. The mere cost of the alloys used is often a minor factor.

Tighter Specifications Extend Usefulness of the Product

In the field of sheets, H. E. Blank, Jr., has pointed out that today 20 gauge sheets and even lighter are used for automobile bodies and that they withstand draws causing elongations of 40%. Formerly a panel was subjected to a series of press operations and annealings until the desired draw was obtained. Now panels that used to require six drawings and several

Continued on page 56



Without Steel We'd Have To **GIVE AMERICA BACK TO THE INDIANS**

EVER stop to realize how utterly your comfort, safety, life itself depend upon steel? When you eat, sleep, walk, ride, telephone or telegraph you are using steel.

Without steel there would be no newspaper, no radio; no heated homes, no modern office or factory buildings; no electric light, no gas, no oil. And as for national defense -- steel is the very bulwark of the nation.

Everything you use and enjoy depends directly or indirectly on steel. Because of

improvements made in steel in recent years thousands of products are of better grade, and cost less -- and hundreds of new products are possible. The steel industry knows how important it is to employment and prosperity to maintain constant improvement in steel and manufacture. That is why Youngstown spends millions to improve its facilities and products and to help the public employ steel to better advantage.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels

General Offices

YOUNGSTOWN, OHIO

Sheets - Plates - Pipe and Tubular Products
Conduit - Tin Plates - Bar - Rods - Wire - Nails
Tie Plates and Spikes.

25--13B



YOUNGSTOWN

TOO MANY HANDS

Spoil the Printing Specification

But when designer, buyer and craftsman work cooperatively, each contributing his special talents, look for good results

KEN TUTTLE

The Stanley Works
New Britain, Conn.

EIGHT YEARS OF selling printing and ideas to various eastern manufacturers taught me that the apparent meticulous care used by many purchasers of the printed piece do not always result in a super-broadside or folder. Analysis of such cases, where disappointment had resulted even after unusual care on the buyer's part, revealed several contributing factors which produced results unsatisfactory to the buyer:

1. Over-specifying the details of the job. Sometimes this was caused by lack of confidence in the

Mr. Tuttle has been on both sides of the fence. For eight years he sold printing and lithography. For the past five years, as a part of his duties in the advertising department of The Stanley Works, he has bought printing and art work. His approach to the consideration of the printed piece combines the viewpoint of the consumer who receives the regular run of printed material, the buyer who must get his dollar's worth of paper, plates, ink and service, and the former salesman who knows what the buyer expects for his dollar.

printer. In the case of inexperienced buyers, it was sometimes an outlet of ego.

2. Complete responsibility for the job taken by the purchasing department. Frequently this involved a useless duplication of effort, and often included minute details with which the layout man was probably more conversant than the buyer.

3. A multitude of "author's corrections" and the expense attached thereto. This was usually caused by new ideas creeping in, after-thoughts which did not coincide with the original and carefully considered layout and copy.

4. Difficulties with mechanical details, such as the wrong combination of paper and plates, etc. This seldom occurs when a competent printer is employed and given a reasonably free rein.

5. Buying at a price, without due regard for other essential factors. In direct contrast to this, satisfactory results are more common when each party to the purchase deals specifically with his own angle of the transaction and brings his special training to that phase without overlapping into the others' fields—when the purchasing department places the order and handles the commercial considerations; when the specifying of details is allocated to the advertising department where the piece was conceived and developed; when the printer selected has the confidence of the buyer and is allowed a certain latitude in type design and format; and when major author's corrections are eliminated by making final decisions before the job goes to the printer, and sticking to them. Much unnecessary grief on the part of buyer, printer and engraver may be eliminated if decisions made before the job goes into production are sustained. When plates are made from a carefully planned layout, it is usually folly to try to make major changes and still hope to receive satisfactory final results.

Buying at a price is many times the reason for unsatisfactory final results, particularly in printing, where

Continued on page 59

VARIETY
IS
THE
SPICE
OF
HIS
WORK



Differences in the product, equipment available and finishes desired make each process cleaning job an individual problem . . . one reason why many purchasing executives in one Midwestern state find this Oakite Service Representative particularly helpful.

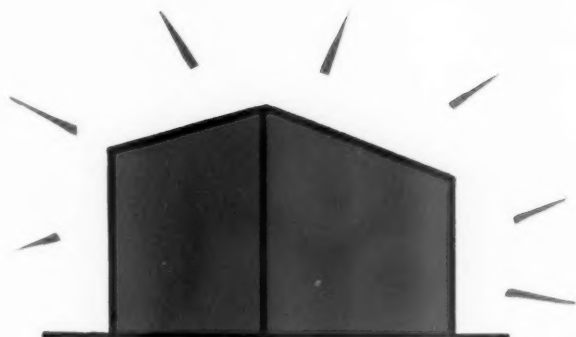
During seven years' practical experience in tackling hundreds of problems under widely diverse conditions, he has acquired a broad yet specialized knowledge of production cleaning. His specific suggestions are thus designed to help his customers economically secure the effective results demanded.

If your cleaning problem is "different" take advantage of this same competent service through your nearby Oakite Service Representative. Write to have him call.

OAKITE PRODUCTS, INC., 54 Thames St., New York
Representatives in All Principal Cities of the U. S.

OAKITE
Certified **CLEANING**
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

For Colorful Boxes



Corrugated boxes combined by The Stein-Hall Starch Combining Process may be as colorful as desired, thanks to their low alkalinity. Attractive colorful papers, impractical in boxes made by any other method, may be used on the liners, even more colorful lettering printed thereon without fear of discoloration, streaking or dimming. The most delicate pastel shades on carton or on the labels of packages inside are unaffected. Boxes made by this Process may now be obtained from many leading corrugated box manufacturers. For a complete list of their names write us.

THE STEIN-HALL PROCESS

CORN PRODUCTS REFINING CO.
17 Battery Place, New York City

CLINTON COMPANY
Clinton, Iowa

PENICK & FORD, LTD., INC.
420 Lexington Ave., New York City

STEIN, HALL MFG. CO.
2841 S. Ashland Ave., Chicago

A. E. STALEY MFG. CO.
Decatur, Illinois

STEIN, HALL & CO., INC.
285 Madison Ave., New York City

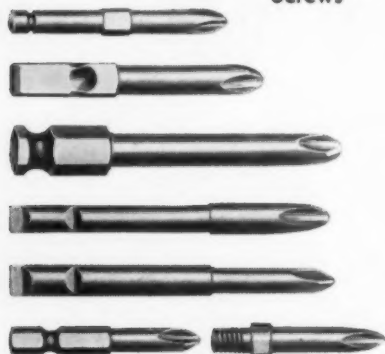
APEX

POWER BITS

for Slotted
Screws

⊖

⊕ for Phillips
Screws



Purchasing Agents:

Your Production Department will compliment you on your good judgment when you buy Apex-Phillips Hand Drivers and Power Bits.

Apex are quality tools of special shock-resisting steel, with maximum hardness, toughness and wear resistance.

There is a complete range of Hand Drivers and Power Bits for all makes of electric, air and spiral drivers.

Also, a complete line of power bits for slotted head screws made from the same steel as Apex-Phillips Bits.

Immediate deliveries on all standard tools. Don't overlook the substantial savings made by having Apex-Phillips Power Bits reconditioned when worn out.



Write for Apex Manual No. 11

Phillips License No. 2
Patents Nos. 2046837—38—40

The APEX MACHINE & TOOL Co.

Dayton, Ohio

PERSONALITIES in the NEWS

LEVERETT A. ANDERSON, for the past five years assistant buyer for the City of Louisville, Kentucky, has been appointed buyer for the Louisville Water Company, succeeding EDWARD G. COLLINS, who has resigned after forty-one years of service with the company. Mr. Anderson is a past president of the Louisville Purchasing Agents Association, and assisted in the reorganization of the State Purchasing Department in 1936.

DONALD SIMMONS has been appointed buyer in the San Diego County (Calif.) purchasing department, succeeding to the position formerly held by WALTER E. BYSTROM. Mr. Bystrom has been advanced to the position of assistant purchasing agent. Mr. Simmons headed a list of 48 applicants who took civil service examinations for the position.

HENRY GEORGE, for the past twelve years local purchasing agent for the General Motors Corp., Detroit, has been appointed purchasing agent for the Detroit Transmission Division of that organization, a new division organized for the manufacture of automatic transmissions for pleasure cars, trucks and busses. A. J. CAMPAU, who has been associated with the purchasing and salvage sections, succeeds Mr. George as local purchasing agent.

JOHN M. DAY, for many years purchasing agent of the Walker & Pratt Mfg. Co., Watertown, Mass., has resigned to join the sales force of the Edward Bass Electric Co., Boston.

LEON BOOTH, City Purchasing Agent at Shreveport, La., has resigned to become Director of Public Relations at Centenary College and president of the advertising firm of Booth, Pelham & Co.

C. G. CHASE, who has been safety engineer for the St. Croix Paper Co., Woodland, Maine, since 1931, was appointed purchasing agent for that company July 1st, succeeding J. H. MCDANIELS, who retired on that date and is since deceased.

R. W. PETERSON, Purchasing Agent of the Glidden Co., Berkeley, California, addressed the third annual Stanford Business Conference at Palo Alto last month on the topic, "Right Buying—Time, Place, Price."

ALBERT H. NIMIS has been appointed chief purchasing agent and supervisor of printing and lithographing for the Seagram Distillers Corp. He has served as assistant purchasing agent for the past two years.

EMMETT C. ECKDALL of Cheyenne has been appointed assistant purchasing agent for the State of Wyoming. Mr. Eckdall was until recently a field auditor for the sales tax division of the Wyoming State Board of Equalization.

J. F. LANTRY has been named City Purchasing Agent at Tulsa, under an ordinance passed several months ago. Mr. Lantry is a civil engineer by profession and has had experience in pipe line and construction work.

HARRISON PARKMAN, Purchasing Agent for the U. S. Post Office Department, Washington, addressed the annual convention of the Texas Postmasters League at Abilene last month.

CURTIS D. WATSON of Zanesville, Ohio, has been appointed purchasing agent for the Ohio State Department of Liquor Control.

JAMES R. PLEASANTS, Purchasing Agent of the Durham (N. C.) Ho-

Here's where
SCREW COSTS *mount up*
... and where PHILLIPS screws
CUT THEM DOWN

AVERAGE 50% LESS ASSEMBLY TIME

The patented Phillips recessed head means that *every screw is used*. Phillips Screws cling to the driver—none fumbled, even with one hand steadying the work. Phillips Screws are self-centering—none driven crooked. Phillips Screws fit the driver snugly—no reaming action to throw up burrs.

Shape, taper and depth of the genuine Phillips recess were determined after thousands of tests. The recess utilizes the driver's maximum turning power without sacrifice of strength in the screw head... without danger of shearing the metal.

So, give your assemblies the benefit of this fastening method that so many thousands of manufacturers have adopted. And give yourself the benefit of profits that Phillips Screws will earn on your production line.

Write for facts about further advantages—elimination of spoilage, tighter assemblies, improved appearance, etc. Address one of the firms listed below.

This Booklet will help your plant to cut fastening costs and improve assemblies. Address one of the firms below for free copy.



The rubbish barrel takes care of any savings a manufacturer thinks he is making by buying *slotted* screws instead of *Phillips Recessed Head Screws*.
 ... screws dropped on the floor edly and get their threads spoiled... screws that burr easily or split at the head... these are the *expensive* screws. You save their cost by buying Phillips.



**YOU WOULDN'T PLAY EVERY SHOT
 WITH ONE DRIVER**

For efficient driving, contact between recess and driver should extend as far as possible from the screw's axis. On the other hand, too big a driver means stripping threads or tearing fibre structure of wood or metal. Thus it requires four driver sizes to drive properly the entire range of recessed head screws. Two sizes of Phillips Drivers handle diameters No. 5 through No. 16 or approximately 85% of all screws driven.



THE RIGHT WAY

THE WRONG WAY



PHILLIPS *recessed head screws*

MACHINE  **SCREWS**

SHEET METAL  **SCREWS**

WOOD  **SCREWS**

STONE  **BOLTS**

U. S. Patents on Product and Methods Nos. 2,046,343; 2,046,837; 2,046,839; 2,046,840; 2,082,085; 2,084,078; 2,084,079; 2,090,538.
 Other Domestic and Foreign Patents Allowed and Pending.

American Screw Co., Licensor, Providence, R. I.
 Chandler Products Company, Euclid, Ohio
 Continental Screw Co., New Bedford, Mass.

Corbin Screw Corporation, New Britain, Conn.
 The Lamson & Sessions Co., Cleveland, Ohio
 National Screw & Mfg. Co., Cleveland, Ohio
 Parker-Kalon Corporation, New York, N. Y.

Pheoll Manufacturing Company, Chicago, Illinois
 Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.
 Scovill Manufacturing Co., Waterbury, Conn.

IT COSTS LESS TO USE PHILLIPS SCREWS

The VICTORIOUS ACE SQUADRON
Battle-Proved Masters in the Realm of
STAPLING MACHINES

ACE \$6.00
PILOT \$4.00
CADET \$3.00
SCOUT \$1.00
CLIPPER \$4.00

Superior Performance and Durability have earned them that coveted Award of Merit—

WORLD-WIDE LEADERSHIP IN SALES
"An ACE always comes out on Top"

Recommended and Sold by:—
STATIONERS and OFFICE SUPPLY DEALERS Everywhere
PRODUCTS OF ACE FASTENER CORPORATION—CHICAGO

ARMSTRONG



*You can't save on
ARMSTRONG TOOL HOLDERS
... you save with them*



When it comes to cutting costs, you can't save on ARMSTRONG TOOL HOLDERS. To try to do without the right one for each job, to "get by" with makeshift or hand-forged tools, is certain to add to your costs.

With ARMSTRONG TOOL HOLDERS you are permanently tooled-up (time and tool cost saved); any mechanic can make or re-sharpen a cutter-bit in a few minutes ("dressing" delays eliminated, machine hours saved); each ounce of steel in a bit does the work of 10 ounces on a bar (steel consumption cut to 1/10); bits can be used down to the last inch (no waste in heavy tool "stumps"); and since each ARMSTRONG TOOL HOLDER is a multi-purpose tool that does the work of a complete set of forged tools, heavy investment in costly steels and high costs of storing and handling are ended.

If you are seriously interested in cutting cutting-costs to the absolute minimum, buy more ARMSTRONG TOOL HOLDERS... adopt the Armstrong System and "Save All Forging, 70% Grinding, and 90% High Speed Steel" on every operation on every lathe, planer, slotter and shaper.

ARMSTRONG BROS. TOOL CO. "The Tool Holder People"

303 N. Francisco Ave., CHICAGO, U.S.A.

Eastern Warehouse & Sales—199 Lafayette St., N. Y. London San Francisco



siery Mills, served as general chairman of Durham's second annual soap-box derby, August 2nd.

O. E. McCLATCHEY, Purchasing Agent of the Barnsdall Oil Co., has been elected president of the Tulsa Chapter of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, Inc.

Obituary

WOODIE J. LEGIER, 54, for the past 19 years purchasing agent for the City of New Orleans, died at his home, July 6th, after an illness of more than a year.

JOHN H. McDANIELS, 76, for more than a quarter of a century purchasing agent for the St. Croix Paper Company, Woodland, Maine, died at his summer home in Calais, Maine, July 8th, just a week after he had retired from active business.

JOHN J. SCULLY, 56, a director and purchasing agent for the J. E. Smith Lumber Co., Waterbury, Conn., died of a heart attack at his home in that city, July 10th.

WILLIAM A. REINKE, 44, formerly purchasing agent of the P. A. Geier Co., Cleveland, and more recently associated with the sales organization of the Reliance Rubber Co., died at the St. Vincent Charity Hospital in that city, July 11th.

JAMES SAYER, 61, formerly purchasing agent for the Abendroth Brothers Foundry, Port Chester, N. Y., for 25 years, died July 15th at the United Hospital in that city.

DERK A. SCHOLTENS, 45, Purchasing Agent for the Norge Corporation for the past eight years, and prior to that time serving in a similar capacity for its predecessor company, the Alaska Refrigerator Corporation, died July 21 at his home in Muskegon, Mich., after an illness of three months.



**“DIRTY CLOTHS ONLY WIPE AWAY PROFITS,
FOR LOST TIME, DOCTOR BILLS AND COMPEN-
SATION PAYMENTS ARE COSTLY. CLEAN, SANI-
TARY WIPING CLOTHS ASSURE EMPLOYERS OF
MAXIMUM PROTECTION AGAINST COSTLY
DERMATOSES AND INFECTIONS. IT PAYS TO
USE THEM.”**

Quoted from “Occupational Hazards and Safety.”

For prices and samples write any listed member. For Institute specifications write any member or The Sanitary Institute of America, 105 W. Monroe St., Chicago, Ill.

**SANITARY INSTITUTE OF AMERICA
105 W. MONROE ST. ~ ~ CHICAGO, ILL.**

The Sanitary Institute of America Consists of Forty-seven Members in Twenty-one of the United States and Canada. This Advertisement is Sponsored by the Following Members.

BROOKLYN, N. Y.
American Sanitary Rag
Co., 600 Degraw St.

BROOKLYN, N. Y.
Delia Waste Products
Corp., 1557 Dean St.

CHICAGO, ILL.
American Sanitary Rag
Co., 1001 W. North Ave.

CHICAGO, ILL.
Chicago Sanitary Rag
Co., 2137 S. Loomis St.

CLEVELAND, O.
Mansco Corp.,
3524 East 74th St.

PITTSBURGH, PA.
Armstrong Sanitary
Wipers Co. 1233 Spring
Garden Ave.

PITTSBURGH, PA.
Scheinman-Neaman Co.,
1024 Vickroy St.

ST. LOUIS, MO.
Wiping Materials, Inc.,
2000 N. Main St.

Among the Associations

JULY 11

Detroit—Golf tournament of the **Detroit Association**, at Plum Hollow Country Club.

tion, at the Columbia Hotel. Speaker: Rev. John Hackett, pastor of St. Augustine's Church.

JULY 14-15

JULY 13
Kalamazoo—Luncheon meeting of the **Kalamazoo Valley Association**

Asheville, N. C.—Quarterly meeting of the **Carolinas-Virginia Association**, at Grove Park Inn.

The program included a commodity session on Friday afternoon, banquet session Friday evening, and business session Saturday morning. Speakers included: C. H. Dry of Canon Mills, "Salvage and Scrap Disposal"; W. Z. Betts of N. C. State Highway and Public Works Commission, "Convention Highlights"; Dr. H. R. Young of Dupont Laboratories, "Progress in the Paint Industry"; J. W. Knowlton, economist, "What Next?"; Harry H. Straus, President of the Ecusta Paper Corp.; and George A. Renard, Executive Secretary of the N. A. P. A., "From One P. A. to Another." Commodity discussion was led by H. D. Waters, "Coal"; I. M. Lynn, "Iron and Steel"; W. S. Pepperell, "Textiles"; D. S. Burnside, "Lumber"; Malcolm MacDonald, "Paper"; and E. A. Terrell, "War Materials." C. K. Coker and W. G. Terry presided.

JULY 18

Louisville—Meeting of the **Louisville Association**, aboard the Steamer *Eleanor T.*

JULY 20

Cleveland—Annual family picnic of the **Cleveland Association**, at Nela Park. Baseball and sports, prizes, dinner, and dancing. Harry Markle was chairman of the committee on arrangements.

JULY 22

Erie—Eighth annual picnic of the **Erie Association**, at Moreland Park. General program of sports events, followed by an ox-roast. Michael J. Devine was general chairman of the committee.

Seattle—Annual family picnic of the **Washington Association**, at Bartell's Resort on Beaver Lake. Full program of sports and contests, including a softball game. Picnic dinner. E. R. Thatcher was chairman of the committee in charge.

..... remember that
BRUNT builds
better **BOXES**

WHEN YOU HAVE A PACKAGE PROBLEM
BRUNT ORIGINAL DESIGNS PERFORM WHERE
STANDARD TYPES FAIL

*Watch this space for
Distinctive Packages*

DRESSED POULTRY BOX

Easy to assemble
and pack without
expensive equip-
ment.

Triple Ends—
Double Sides—
Smooth Inner
Surface.

Corner Folds
keep out dirt and
moisture and
provide stacking
strength.

Light weight and
easy to open and
reclose for in-
spection or dis-
play.



Patented—U.S. Pat. No. 2108907

This Dressed Poultry Box has successfully met refrigerating and shipping tests. Saves in initial cost and transportation charges. Printed in colors is a beautiful display package.

BRUNT & COMPANY
CORRUGATED FIBRE BOXES
CORRUGATED PAPER PRODUCTS

6935 W. 65th STREET

CHICAGO, ILLINOIS



Cincinnati—Annual stag picnic of the **Cincinnati Association**, at The Pines Country Club. Noon-day luncheon, followed by an afternoon of sports and a chicken dinner. Ed Frederick was chairman of the committee in charge.

JULY 24

Detroit—Annual Moonlight sail of the **Detroit Association**, on the Steamer *Put-In Bay*.

Houston—Annual summer dinner dance of the **Houston Association**, at San Jacinto Inn. Fred Lane was general chairman for the occasion.

Stroudsburg—Annual outing and clambake of the **Lehigh Valley Association**, at the Glen Brook Country Club. C. W. Rubow was chairman of the committee on arrangements.

JULY 27

Buffalo—Annual family picnic, dinner and dance of the **Buffalo Association**, at the Automobile Club grounds in Clarence. Russell Unkrich was chairman of the committee on arrangements.

Mission City, B. C.—Plant visit of the **British Columbia Association**, at the Mission City plant of Canadian Cannery (Western, Ltd.), where the entire process of canning green peas was shown under the guidance of P. A. Charles Girling. The outing included a trip of 55 miles up the Fraser River Valley from Vancouver, to Mission City.

JULY 28

Syracuse—Annual summer party of the **Syracuse & Central New York Association**, at the Bellevue Country Club. In addition to golf, there was a general program of sports, featuring a softball game between salesmen and buyers. Lew Saunders was in charge of the arrangements.

JULY 30

Monroe, Mich.—Annual golf tournament and frolic of the **Toledo Association**, at the Monroe Country Club.

Portland—Annual family picnic of the **Oregon Association** at the



Protect Your Workers with

MORTON'S SALT TABLETS

Heat-Fag is real — an unseen but powerful force that rides every hot wave . . . a force that costs industry thousands of dollars each year. For, hot days and heavy work make men sweat — and, unless the salt that's sweated out of their bodies is replaced, Heat-Fag takes its toll, production sags and profits suffer. This fact is known by medical men everywhere and by safety directors, executives and plant superintendents.

Prevent HEAT-FAG in Your Plant

Place Morton's Salt Tablet Dispensers at drinking fountains. These modern, sanitary dispensers represent the most efficient and economical way to provide workers with salt. A single push of the lever dispenses one tablet at a time.

MORTON'S SALT TABLETS

Dissolve in 50 Seconds

They are easy to take — dissolve quickly. Only the purest and most highly refined salt is used.

Anticipate the Hot Days Ahead

Install Morton's Dispensers and Salt Tablets in your plant now. Place your order today. Remember — a small investment now will pay big dividends in Heat-Fag protection. Shipment will be made promptly — prepaid.

Write for folder — "Heat-Fag"



MORTON SALT COMPANY CHICAGO, ILLINOIS

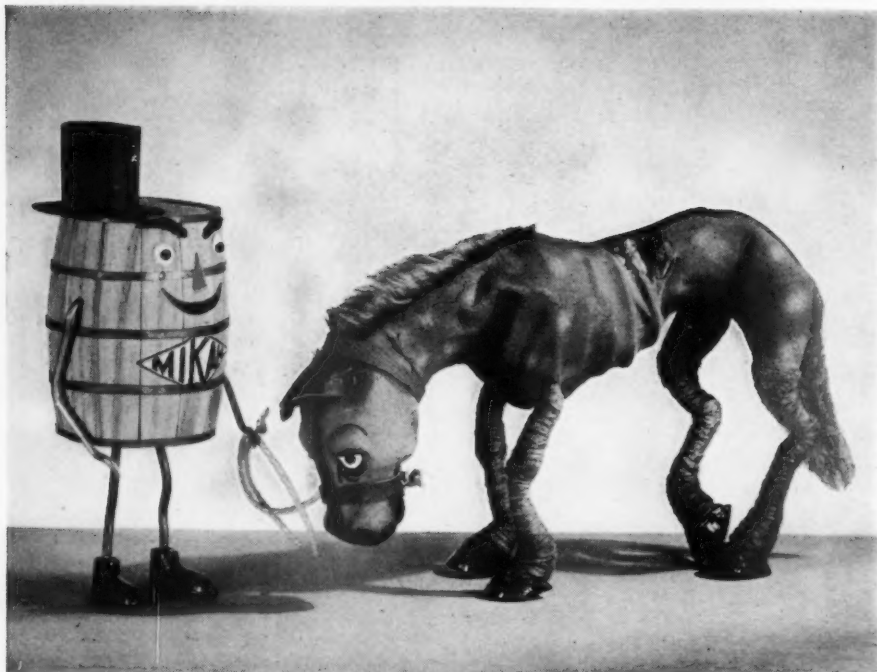
clubhouse of the Oregon Portland Cement Co., Oswego. A full program of sports and stunts was arranged, with special attention to the children. Frank O. Curtis was chairman of the committee, assisted by Messrs. Williams, Woodbury and Buckner.

AUGUST 1

Hudson, Ohio—Annual golf outing of the **Akron Association**, at the Lake Forest Country Club.

Tool Show Planned

R. T. PHIPPS, Purchasing Agent of The Bullard Co., Bridgeport, Conn., has been named to direct an exhibit of small machines and tools to be held in that city in March, 1940, under the auspices of the local branch of the American Society of Tool Engineers. There will be four daily technical sessions. The State Armory has been engaged for the show, and approximately 150 booths will be displayed.



"Ain't What She Used to Be!"

In packaging and labeling, too, efficient, modern methods have replaced yesterday's makeshifts.

These specialized operations require specialized glues and pastes. We have them—for every machine or hand operation.

NATIONAL ADHESIVES CORPORATION

820 Greenwich St., New York—Chicago—Philadelphia—Boston—San Francisco
and all Principal Cities.

Buyer's Bookshelf

THE MICROSCOPE IN ELEMENTARY CAST IRON METALLURGY, by Roy M. Allen. This book is an enlargement of the material presented in a series of lectures at the 1939 convention of the American Foundrymen's Association, at Cincinnati. It is written in non-technical language, for the novice as well as the expert, and besides its fundamental informative purpose it is a determined effort to demonstrate to the "practical man" that there is nothing essentially difficult about the elements of metallurgy, the microscope

and its use, nor the interpretations of photomicrographs if those essentials are understood. Explanation by means of simple analogies makes for unusual clearness and readability. On the metallurgical side, the author deals with the behavior of sulphur and phosphorus in cast iron, their effects on the properties of the metal, and how they can be identified in the microstructure. He goes on to a consideration of special cast irons—white, chilled, malleable, and alloy cast irons—explaining variations in properties

by the use of photomicrographs. In a succeeding section he explains the value and use of equilibrium diagrams, from the simple binary type to more complicated forms and particularly the iron-iron carbide diagram. In the final chapter, the microscope and the technique of its use are discussed, including focussing, taking the photomicrograph, etching reagents, and sample preparation. Various types of equipment for grinding, polishing, and photographing metal samples are shown. All of these procedures are considered from the ultimate purpose of interpreting what is seen in the microscope and in the microphotograph. 160 pages, 6 × 9, with 73 illustrations; brown waterproof cloth binding. Published by the American Foundrymen's Association, 222 West Adams Street, Chicago. Price, \$3.00.

ARC WELDING IN DESIGN, MANUFACTURE AND CONSTRUCTION. This new volume comprises 109 of the outstanding papers selected from among those submitted in a nationwide study with awards totalling \$200,000. The papers are practical and specific, outlining in detail proved welding practice for a wide variety of products of industrial application. They are conveniently collated under ten major subject classifications, as follows: Section I, Automotive—9 chapters, 89 pages, 47 illustrations; Section II, Aircraft—6 chapters, 74 pages, 38 illustrations; Section III, Railroad—11 chapters, 130 pages, 60 illustrations; Section IV, Watercraft—9 chapters, 115 pages, 71 illustrations; Section V, Structural—14 chapters, 248 pages, 113 illustrations; Section VI, Furniture and Fixtures—7 chapters, 36 pages, 17 illustrations; Section VII, Commercial Welding, Automotive Repair, Plant Welderies—4 chapters, 106 pages, 47 illustrations; Section VIII, Containers—11 chapters, 156 pages, 64 illustrations; Section IX, Machinery—29 chapters, 382 pages, 192 illustrations; Section X, Jigs and Fixtures—9 chapters, 66 pages, 48 illustrations. Despite the voluminous nature of these contents, the book has been prepared in convenient desk size, and in keeping with the educational objectives of the study which it summarizes, it has been made available on a non-profit basis to bring this new and useful data within easy reach of engineers and mechanics, students, designers, architects and production officials. 1,408 pages, 6 × 9, bound in semi-flexible leather. Published by the James F. Lincoln Arc Welding Foundation, P. O. Box 5728, Cleveland. Price, within the United States, \$1.50; elsewhere, \$2.00.

THE MANUFACTURER AND INSURANCE, by Lawrence S. Myers, Assistant Vice President of Marsh & McLennan, Chicago.

This volume which started out as a sort of manual for the guidance of other members of the author's own organization, provides a complete reivev of the insurance needs of a manufacturing house and how those needs can be covered, discussing not only the standard policies, but also the particular circumstances under which modifications are necessary for complete protection, and the special forms and endorsements which are recommended for many types of risks. The work embraces the entire field of fire and casualty insurance and suretyship. Among the specific topics treated are: fire insurance, explosion, riot and civil commotion, windstorm, sprinkler leakage, aircraft and automobile damage, earthquake, water damage and flood insurance, extended coverage and other combination coverages, legal liability insurance, use and occupancy, profits, rent, leasehold and other indirect damage lines, complete automobile insurance including non-ownership liability, ocean cargo, boiler and machinery direct damage, fire interruption, burglary, robbery, forgery, fidelity bonds, workmen's compensation, employers' liability, manufacturers' public liability and property damage liability, contingent liability, plate glass, accounts receivable, destruction, credit, patent infringement, elevator liability, and various forms of group accident insurance. The work is so up-to-date that it includes mention of the new Workmen's Compensation Law of Arkansas, as well as the many insurance forms which have been introduced or revised during the past few months. Even the application of such lines as live stock, crop and rain insurance to manufacturing risks is analyzed and explained. There are helpful sections on the prevention of fire, accident and miscellaneous losses, and on probable and needed developments in the insurance field. Originally conceived as a handbook for the insurance man, it is a book of practical value to the business man interested in his own insurance protection, and particularly for the official charged with the procurement of such protection. 350 pages, cloth bound. Published by the Fire, Casualty and Surety Bulletins Department of the National Underwriter Company, 420 East Fourth Street, Cincinnati. Price, \$3.00 for a single copy, with a sliding scale of discounts for purchases of six or more copies.

ELEMENTARY FOREST MENSURATION, by M. R. K. Jerram and R. Bourne, late of the Indian Forest Service. A specialized treatise for the industrialist concerned with the purchase or management of standing timber, this concise textbook brings together a fund of information not readily available from other sources. It covers the theory of tree measurement, the measurement of felled trees and their outturn, the measurement of a standing

AUGUST 1939



*Does YOUR FIRM'S
SHIPPING DEPARTMENT
REFLECT ALERT *BUYING?*

● So many of the most aggressive companies, large and small, in over 350 industries have already adopted the Signode Buying Plan that there's every chance your firm has done so, too. In that case, you know first-hand how standardizing on the Signode System of Tensional Steel Strapping has saved money and improved shipping methods. If not, you have an excellent opportunity to participate in the kind of constructive buying every P.A. shoots at.

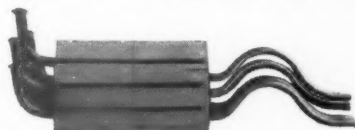
Here's all you do: Call in a Signode consultant—reach him locally by phone or write us direct. Let him analyze present shipping methods, prepare an estimate of the actual savings in packing materials, in packing labor, in lower

damage claims, Signode methods make possible for each of the various ways shipments may move—from small packages to carlots.

Depend on it, savings like these plus the other advantages of the Signode Buying Plan . . . increased customer good-will . . . simplification of purchasing routine through blanket orders for branches and subsidiary participation . . . are certain to be recognized by management as "purchasing at its best."

SIGNODE STEEL STRAPPING CO.
2602 N. Western Ave., Chicago, Ill.
371 Furman St., Brooklyn
454 Bryant St., San Francisco
40 OFFICES IN UNITED STATES AND CANADA

***ALERT BUYING MADE POSSIBLE SAVINGS LIKE THIS!**



Illustrations show old and new methods used by a muffler manufacturer for shipping his odd shaped product. By bundling these mufflers with Signode Steel Strapping, this manufacturer has secured shipping savings of 4c to 11c per muffler. He reports



that thousands of mufflers have been shipped in this way without a single loss to date from damage in handling by the transportation company . . . or by any of the bundles coming apart, due to the strapping being cut off or broken in transit.

SIGNODE Tensional Steel Strapping

tree, volume tables, and increment of individual trees, the measurement of woods, field tables, and the measurement of forests, with an appendix of pertinent tabular factors and the use of graphs. 124 pages, cloth bound, with numerous diagrams to illustrate the application of the principles discussed. Published by Nordemann Publishing Co., 215 Fourth Avenue, New York. Price, \$2.45.

WARREN C. HOLLINGER, Purchasing Agent of the Canton (Ohio) Hardware Company, has been

elected to the board of directors of the company. Mr. Hollinger has been with the company's Factory Supply Department for twenty-seven years.

HOWARD BROWN, formerly associated with Thompson Products and the Hauserman Mfg. Co., Cleveland, has been appointed purchasing agent of the Cleveland Automatic Machine Co., succeeding GEORGE COLLIER.

PAGE 41

One Screw's "HEAT" is Another's "POISON"

SO WE SET UP THIS GUESS-STOPPER FOR HEAT TREATING



"16 POINT QUALITY-CONTROL" Leads Critical Buyers to Demand PARKER-KALON

Heat Treating Control is only one of 16 checks on important characteristics of Parker-Kalon Cold-forged Socket Screws. In a laboratory without counterpart in the industry, quality is guarded by thorough tests and inspections covering:

1—Chemical Analysis. 2—Tensile Strength. 3—Ductility. 4—Torsional Strength. 5—Ability to take Shock Loads under Tension. 6—Resistance to Shock Loads under Shear. 7—Hardness. In addition, there is a rigid inspection of these essentials: 8—Head Diameter. 9—Head Height. 10—Concentricity of Head to Body. 11—Socket Shape. 12—Socket Size. 13—Socket Depth. 14—Centricity of Socket. 15—Class 3 Fit Threads. 16—Clean Starting Threads.

In this way Parker-Kalon maintains a new higher standard of quality in Socket Screws... a standard that satisfies the most critical buyer. Send for free samples... see for yourself.

PARKER-KALON CORP., 206 Varick St., New York.

PARKER-KALON *Cold-Forged* **SOCKET SCREWS**



Commodity Futures

Trading in commodity futures in July amounted to 202,040 contracts, a gain of 7% over the June volume (14% on a daily basis) and 12% short of the volume traded in July a year ago.

The gain was principally accounted for by increased activity in the Chicago wheat pit and some speculative trading in corn futures because of the hot weather scare. The grain group as a whole was 18% larger than in the previous month.

Volume in industrial commodities was moderate and did not reflect the general improvement in business. Rubber showed the greatest gain—20%, while silk, copper and hides were fairly active. Only 2 tin contracts were traded as compared with 24 in June, and 16 zinc contracts as compared with none in June.

The stronger price on wool tops showed in a gain of 481 contracts, or 51% over the previous month, while among other leading commo-

ties there was a slight decline recorded in sugar and coffee and a very drastic reduction in the number of cocoa futures following the heavy liquidation and switching in June.

The Chassis

(Continued from page 28)

These designs are worked out to give approximately 18,000 pounds load on the rear axle, or the maximum permitted in the state of Pennsylvania. Under these conditions the "engine-under-seat" truck can be loaded to 26,000 lb. gross, whereas the conventional design can be loaded only to 24,820 lb. Thus the former has a payload advantage of 570 lb., after allowing for its 610 lb. of additional chassis weight.

A comparison of the extreme turning circles demonstrates the increased mobility of the C. O. E. construction. Their diameters, as described by the end of the front bumper, are 79 ft. 2 in., and 59 ft., or 20 ft. 2 in. less for the "engine-under-seat" vehicle. (B. B. Bachman, Vice-President, The Autocar Company, in *S. A. E. Journal*, March, 1938 issue.)

Increased attention to design of the cab has been found essential for the chassis in which the engine and driver's seat have been placed close together. Many of the resulting improvements have also been applied to the conventional truck chassis. Modern cabs are well insulated, to keep heat and fumes outside the driver's quarters. Seats and backs are better upholstered, dome light, ventilator and a defrosting device may be installed, and safety glass is used for windshield and windows. Thus the comfort and safety of the driver are considered to an extent unheard of a few years ago.

The quietness and reliability of present-day truck engines have contributed materially to the success of C. O. E. vehicles. But more important in general than these advantages is the increased engine power now being furnished, particularly on the lighter truck chassis. Demands for higher speeds and greater load-carrying ability have

been satisfied in part by more powerful engines, and also by improvements in such components as transmissions, rear axles, brake mechanisms and tire equipment. Important characteristics of these components, in terms of their use on 1939 truck chassis, are represented in the accompanying chart. This is arranged as far as possible on a progressive basis; that is, the characteristics at the extreme left apply mainly to the light-truck chassis, those at the extreme right to the very heavy truck chassis. As it happens this arrangement cannot be followed in the upper bar, showing the distribution of engines by number of cylinders. At the left of this bar are represented the proportion of three-cylinder engines. All these listed are Diesels, specified for medium-size truck chassis. At the right are indicated the eight-cylinder proportion, but these are all applied to the light-duty trucks offered by one of the larger producers.

Six-cylinder engines are by far the most popular type for truck chassis, and have led since 1932 as measured by volume of factory sales. The sixes are used on all the various capacities of truck chassis, and in both Diesel and gasoline types.

Introduced from Europe about ten years ago, and first used for heavy-duty, high-mileage commercial vehicles, the Diesel advantages of high torque and fuel economy have led to its adoption as standard equipment by practically all the truck makers. One-ninth of the current models have Diesel engines. Production facilities have been increased notably in recent years. A leading truck maker offers a line of twelve Diesel trucks, powered by its own design of two-stroke Diesel engines. One of the engine manufacturers is producing a line of ten sizes of the Diesels, varying from 196 to 909 cubic inches displacement. But so far the surface (of truck applications) has barely been scratched. A recent count showed that only about five thousand motor vehicles with Diesel engines are in service in this country.

AUGUST 1939



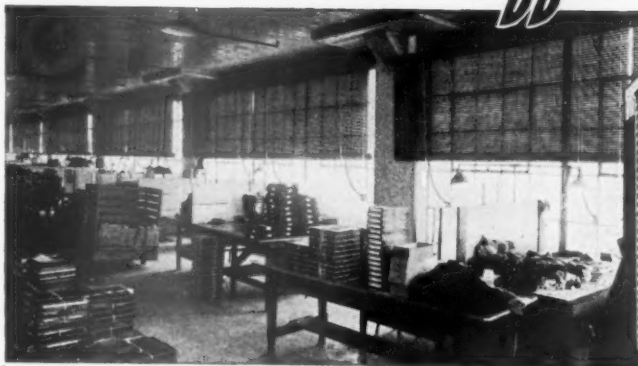
THEY'LL appear in a wide variety of sizes and shapes—in everything from automotive parts to electrical appliance equipment—as high quality castings from the Forest City Foundries Co. And because Forest City Foundries casting specialists have carefully tested them every step of the way from pigs to finished castings, they'll do their job right—at a low unit cost.

For over 48 years Forest City has been producing high quality castings. This experience plus facilities for producing gray iron, semi-steel or high test semi-steel castings that measure up to specifications, is an integral part of the Forest City organization. A call will bring a representative to discuss your casting needs and our ability to meet them.

THE FOREST CITY FOUNDRIES CO.

2500 WEST 27th ST. Phone PRospect 5040 CLEVELAND, OHIO

RA-TOX FOR efficiency



RA-TOX Shades can help in a very definite way to make your factory and office more efficient. The glare of direct light is mellowed to a pleasing diffusion. Plenty of air is admitted without the danger of direct draft. More work, and better work, can be done under such agreeable conditions.

RA-TOX Shades have proved their efficiency in leading factories throughout the country. They are available in narrow splints as well as standard width; square-edge splints and bevel-edge splints; and in three finishes—stain, metallic aluminum, enamel.

Write us today and let us show you by word and picture how RA-TOX Shades have benefited many factories and offices, and how they give service for years and years.

Made of selected basswood strips, woven parallel with hard twist seine twine; attractive, fast colors add smart, business-like appearance.

HOUGH SHADE CORPORATION
1020 Jackson St., Janesville, Wis.
Send complete RA-TOX details at once.

Name

Address

City State

☐ Steel Sash

☐ Wood Sash

PAGE 43

BRISTOL BRASS SHEETS



USED FOR THOUSANDS OF FABRICATED PARTS

Tell us your **FABRICATING PROBLEMS**. We will gladly send samples and suggestions without obligation. *We do not fabricate above parts ourselves.*

Rigid laboratory control certifies our using only such selected material as will produce the best grade of *Brass* or other *Copper* alloys. No possible rolling mill control will overcome a bad start by the use of inferior component materials or careless amalgamation in the original casting.

Crucible pit fires or electric furnaces are used in melting our alloys according to requirements. All castings are approved before delivery to the rolling mills. Subsequent reducing and finishing operations are inspected. To reduce rejections to a minimum the identity of each process-operator on all metal is recorded.

Our mills produce metal with accuracy in gauges from .005 to 1 inch thick and in widths from $\frac{1}{8}$ to 16 inches, in any requisite temper.

A corps of experienced, practical brass men assures to our customers, the correct metal.

THE BRISTOL BRASS CORP.

BRISTOL, CONN.

**Brass and Copper Alloys
SHEET • ROD • WIRE
Established 1850**



Unlike the number of engine cylinders, the number of gear reductions tends to increase with the gross vehicle weight. The three-speed transmission is found on the lighter commercial cars, say of 1 ton or less capacity, the four-speed for medium-size vehicles, in the 1½ to 2½ ton class, and the five-speed for heavier models. Transmissions with from six to twelve reductions are available on the heavy chassis, usually for operation under severe load or grade conditions.

About half the current models are provided with the five-speed gearset. As the chart shows, only about 2% have six or more speeds, and require the use of two levers to take advantage of all the speeds. Truck transmissions are now being built with such passenger-car features as synchronous-mesh gears, and with gears of the helical type, as a means of easier, surer and quieter shifting. In the five-speed units the time-honored direct-in-high arrangement may be replaced by a so-called overspeed hook-up, this resulting in higher road speeds at a corresponding sacrifice of tractive effort.

The fact that rear-axle reductions can handle satisfactorily the severe duty necessitated by overdrive gearsets is pretty good evidence of their strength and durability. Axle makers have also been successful in producing designs adequate for heavy-duty application. One of them goes so far as to offer, in a single housing, a choice of three drives: bevel, double reduction, or two-speed double reduction.

Used at first on the lighter chassis, the spiral-bevel reduction with full-floating axles has been developed in recent years for heavier work. As the chart indicates, this design is found on more than half the current chassis models. About one-third the models have the double-reduction design, also with full-floating axle, which has come into increasing use as standard equipment on many of the heavier chassis, and optional on lighter capacities. Some 6% of the chassis are fitted with ten other kinds of rear drive, and are shown as "Misc (10)" on the chart.

Only WIREGRIP



Belt Hooks

have the patented blue Aligning Card that holds hooks in position, prevents them from loosening, prevents hook loss from handling, prevents waste of short ends. Every WIREGRIP Hook to the last one can be used.

Flexible BELT LACING

STEELGRIP is a stronger lacing for all power and conveyor belts. Clinches smoothly into belt, compresses ends, prevents fraying. 2-piece hinged rocker pins prevent excessive wear. In boxes or long lengths.

Write for Catalog
ARMSTRONG-BRAY & CO.

"The Belt Lacing People"
321 N. Loomis St.
Chicago, U. S. A.



DAYTON GRINDING WHEELS

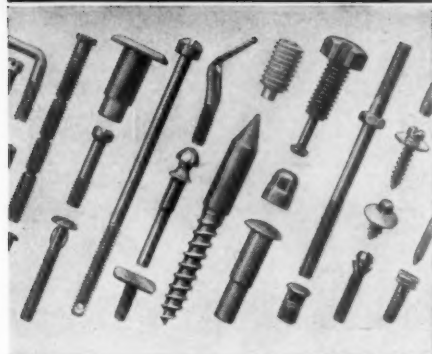
Regardless of your requirements, you can obtain a Dayton abrasive wheel of the exact specifications the work demands. On the market for years and the preference for a wide range of operations. Write

**The
Simonds-Worden-White Co.**
Dayton, Ohio

FACTORIES AT: Dayton, Cleveland,
Beloit, Buffalo

When it comes to brakes the four-wheel variety are standard on light, heavy and intermediate chassis. Means of actuation differ to a great extent with the capacity of the truck chassis. As the chart reveals, current models—or a sprinkling of

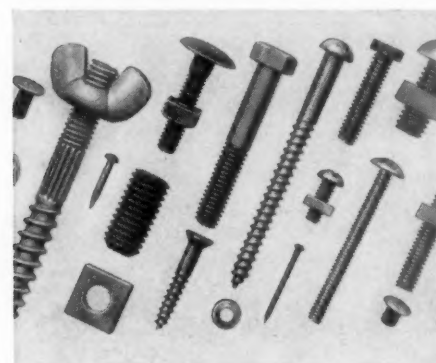
Use
HOLTITE
SCREWS·BOLTS
and Allied Fastenings



Above: SPECIAL Parts and Fastenings accurately made to specifications or samples. Send for estimate. Inspect our salesman's sample kit of Specials.



Above: HOLTITE-Phillips Recessed Head: Self-Centering Screws and Bolts, the modern method of safely reducing fastening costs. Send for full information.



Above: The regular line of HOLTITE products includes a wide range of strong, dependable, precision-made fastenings. Specify HOLTITE on your next order.

**CONTINENTAL
SCREW COMPANY**
New Bedford, Mass., U.S.A.
Warehouses at
Detroit, Mich. - Chattanooga, Tenn.

them—are fitted with mechanically operated brakes, about one-third have the straight hydraulic system, one-half are furnished with hydraulic-vacuum means of braking, and one-tenth with air brakes. The air supply intended primarily for braking control has been found valuable for other purposes, such as sander, clutch and gearshift control.

Brake drums and linings have been greatly improved, particularly since the advent of the heavy buses used in frequent-stop service. The experience thus gained with high temperatures and rapid wear of the friction parts has certainly been of great benefit in the design of brakes for heavy trucks.

This same experience has also been applied to the improvement of heavy-duty truck tires, the working life of which has been tremendously increased in the last two decades. Pneumatics may now be taken for granted on even the heaviest chassis for road service, the once popular solids being found as new equipment only on industrial trucks operated mainly inside buildings or on four-wheel tractors on which machinery is mounted and are more of a standing than a running facility. Most truck chassis these days are fitted with low-pressure or balloon pneumatics. The high-pressure type are listed on about 5% of the current truck models, although they may be obtained as optional equipment on most of the other chassis, to increase axle clearance or load capacity.

Harry Fenner

(Continued from page 26)

ceptably that from that day, more than twenty years ago, he has been known as a purchasing man. Today he holds the dual position of purchasing agent and traffic manager of the company, heading a small and efficient department of six persons handling these two functions.

He supplemented his personal experience by taking evening courses at the University of Cincinnati and the Y. M. C. A., in commercial law, traffic management, and purchas-

Here Is
QUALITY
That Challenges
Higher-Priced
THIN PAPERS!



**You Can Buy
EDGEWORTH
ONION SKIN**

at a price that makes it the biggest value in Thin Papers because of its additional quality!

TRY IT FOR:

Air Mail and Foreign Correspondence—Purchase and Sales Orders—Requisitions—Other Office and Factory Forms.

**SAVE MONEY WITH
THIS EFFICIENCY
CHART—FREE TO
EXECUTIVES!**

Enables you to select at a glance the most economical grade of Thin paper for any specific use. Fits under desk glass for ready reference. Write Dept. A today for your copy!



VALLEY
PAPER COMPANY
Holyoke, Mass.
Makers Of Fine Papers Since 1866

the Paper Clinic

*Of interest to all Purchasing Agents are sources of supply for paper specialties that are bound to come up in the day's activities. The McLaurin-Jones Company produces a famous line of paper specialties for virtually every purpose... better products that have been developed to do a better job for you!

RIDE ALONG WITH McLaurin-Jones PLANET BLUE STAR SEALING TAPE

A first time for PLANET Blue Star Sealing Tape is all we ask. Ride along just once—and you'll ride regularly, for users of McLaurin-Jones PLANET Blue Star Tape are sure repeaters.

... and we mean that some of the biggest shippers from coast to coast find PLANET Sealing Tape the sturdiest and safest. On the toughest, bumpiest rides... with even greater manhandling than shipments it seals are likely to get in transit, PLANET grips hard... sticks like a leech... does the perfect sealing job! Try it... ask your paper merchant or write for free sample coil. From then on you'll specify "PLANET" Blue Star Sealing Tape!



OTHER PRODUCTS in the McLaurin-Jones line, of interest to purchasing agents include McLaurin-Jones Guaranteed Flat Gummed Papers; Ware Metallic Casein Coated Papers; Ware Metallic Pyroxylin Coated Papers; Ware Foils; Ideal Gummed Veneer Tapes; Ideal Gummed Hollands... and a variety of allied items. Ask your paper merchant or write us for details.



McLAURIN-JONES COMPANY - BROOKFIELD - MASS.

McLAURIN-JONES CO.
BROOKFIELD, MASSACHUSETTS

Mills at Brookfield and Ware

OFFICES AT NEW YORK - CHICAGO - LOS ANGELES

ing. The instructor in the latter course was George Merckel, since deceased, then Purchasing Agent of the Allis-Chalmers Manufacturing Company. In 1921 these two were among the original group who met and pioneered to organize the Cincinnati Purchasing Agents Association, and were charter members of that association.

For two years the association operated as an independent group, before affiliating with the National Association of Purchasing Agents and taking its place as an active unit in District No. 6, which embraces the whole State of Ohio. Fenner has held every office in the local group at one time or another and has served on every important standing committee. Nationally minded, and a regular attendant at district and national meetings, he soon became known, liked and respected throughout the district, and was a natural and popular choice for National Vice President to represent the district in national councils, being duly elected to that office at the 1935 convention.

His particular responsibility on the National Executive Committee was new associations, and his efforts in that capacity were marked by the successful addition of a new and active group within his own district—the Tri-State Association, with headquarters at Huntington, West Virginia.

He is also a member of the Cincinnati Traffic Club, representing in that organization the other part of his dual interest and position in business.

ON THE PERSONAL SIDE Harry is unassuming, fun loving, a good mixer who derives his greatest pleasure from being with folks. He has a wide circle of friends, both in his business and neighborhood relationships. He likes people, and, because of his genuine friendliness, people like him. He's good company—simple in his tastes, ready to go, demanding little, and doing his full share whether at work or play. He is an appreciative listener and a good conversationalist, well informed, whose observations are

Specify... PURITAN



when
you
need
**PAPER
CUPS**

ALSO PURITAN
FLAT CUPS AND DISPENSERS

THE AMERICAN PAPER GOODS CO.
CHICAGO, ILL. KENSINGTON, CONN.

COILED WIRE SPRINGS

WIRE FORM SPECIALTIES



Springfield, Ohio, U. S. A.

"Where Your Patronage
Is Appreciated"

sound and to the point. Among salesmen he has the reputation of being a square shooter who knows his business.

Mrs. Fenner is an ideally congenial companion. On convention trips it is easily apparent that they like to travel together and share their experiences. Even more characteristic of this companionability is their life in the pleasant and comfortable home on College Hill, where Harry finds contentment and exercise in working around the ample yard. Their daughter, now married and living in Dayton, is a graduate of the University of Cincinnati, and successfully followed her vocation of interior decoration in the East before her marriage. Harry is a member of the Masonic order, but fraternal activities for their own sake do not figure largely in his scheme of life.

No hobbyist, he finds zest and enjoyment in a variety of interests, and by making himself actively a part of what goes on about him rather than playing the role of an observer of the busy round.

His outstanding characteristic is dependability. His friends and associates have made it a habit to let Harry make the arrangements when plans are under way. He frankly enjoys it, and consistently turns in such a workmanlike job that they have kept coming back to him time after time. It's a satisfying reputation to carry over the years, and there's no trait more useful than dependability in a purchasing man.

—S.F.H.

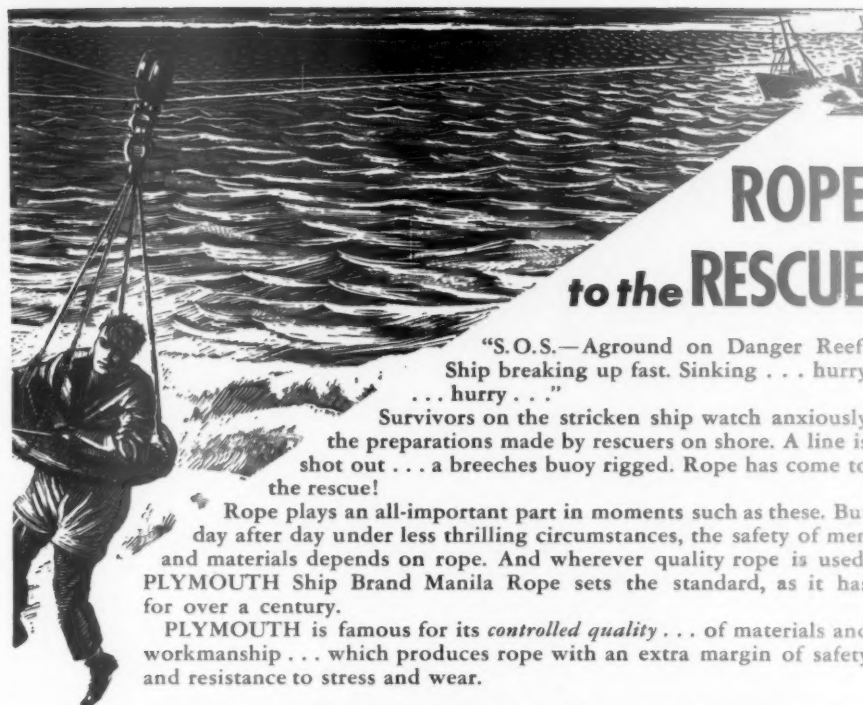
Property Protection

(Continued from page 21)

wire to secure strength equal to that of much heavier fencing. In view of the modern trend toward stainless steel metallic construction everywhere, its use might well enter consideration for any contemplated factory fencing installation—especially since its cost has been brought down to little above that of galvanized copper-bearing steel.

Galvanized ingot iron, costing a trifle more than ordinary steel fabric, provides another type of time-tested, corrosion-resisting fence suitable for many installations.

AUGUST 1939



ROPE to the RESCUE

"S.O.S.—Aground on Danger Reef.
Ship breaking up fast. Sinking . . . hurry
. . . hurry . . ."

Survivors on the stricken ship watch anxiously the preparations made by rescuers on shore. A line is shot out . . . a breeches buoy rigged. Rope has come to the rescue!

Rope plays an all-important part in moments such as these. But day after day under less thrilling circumstances, the safety of men and materials depends on rope. And wherever quality rope is used, PLYMOUTH Ship Brand Manila Rope sets the standard, as it has for over a century.

PLYMOUTH is famous for its *controlled quality* . . . of materials and workmanship . . . which produces rope with an extra margin of safety and resistance to stress and wear.

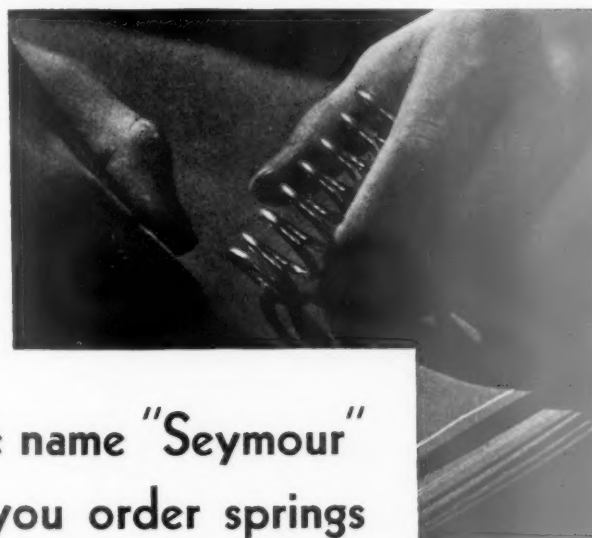
PLYMOUTH CORDAGE COMPANY

NORTH PLYMOUTH, MASSACHUSETTS, AND WELLAND, CANADA

Sales Branches: New York, Boston, Baltimore, Philadelphia,
Chicago, Cleveland, Houston, San Francisco



The use of
Phosphor
Bronze
may help to
keep your
product
SOLD!



Write in the name "Seymour"
when next you order springs

Customers leave their belongings in damp places with no thought of corrosion, then blame the manufacturer if they go bad. You can avoid needless complaints and returns by making vital springs of Seymour Phosphor Bronze. This alloy withstands extreme corrosion and retains its resilience through hundreds of thousands of flexures. Catalog on request.

SEYMOUR

PHOSPHOR BRONZE

THE SEYMOUR MANUFACTURING CO., 55 Franklin Street, Seymour, Conn.



PAGE 47



The "P. A." and I Agree On STARRETT TOOLS

"I like 'em because they help me do better work. You can depend on a precision tool or dial indicator that has the well known Starrett name."

"He likes 'em because he gets a hundred cents worth of service and value for every dollar spent on Starrett Tools. And there's no fuss or bother about buying them—every good tool distributor carries them in stock."



Starrett Verniers, Micrometers, Gages, Squares, Rules and similar Precision Tools are standard shop equipment throughout the metal working industry. It pays to standardize on STARRETT.



The complete line of STARRETT and LAST WORD Dial Indicators includes models and dial calibrations for every inspecting, measuring and indicating operation.

Write for complete Starrett Catalog No. 26P.

THE L. S. STARRETT CO.

World's Greatest Toolmakers
Manufacturers of Hacksaws Unexcelled
Steel Tapes, Standard for Accuracy
Dial Indicators for Every Requirement
ATHOL, MASS., U. S. A.

Recommendations as to the selection of one of these fencing metals for any particular installation is a matter for a fencing expert to determine after examining all conditions pertaining to that installation.

Styles, heights, trimmings, gates, etc., are all matters of catalog selection to meet requirements and individual tastes.

Fence erection is then the final matter for experienced fence-erection crews, determining to a great degree the effective life of the fence.

With these conditions carefully met, the resultant "tailor-made" factory fence is one which should afford strong, silent protection to factory and grounds for many years.

Fencing Inside as well as Outside

Protection to certain sections of building interiors is often as important as protection on the outside. Chain link metal fencing is especially effective as protective partitioning for stock rooms, store rooms, tool rooms and otherspecial departments. Standard panel units make for quick and flexible installation of such partitioning. Panel units are usually made 4 feet by 8 feet, uniform and interchangeable, woven of No. 10 galvanized wire in meshes 1½ inch square. Each panel is provided with legs which furnish a 3 inch floor clearance. When higher enclosures are required, standard panels without legs may be placed in a horizontal position above the line of 8 foot sections. Where ceiling clearance is not sufficient to permit use of the standard 4 foot wide panels, panels either 1 foot, 2 feet, or 3 feet wide, without legs, may be obtained.

Such inside partitioning affords real protection, is fireproof, allows complete visibility and ventilation, and has 100% salvage value, as panel partitions may be removed to other locations as often as necessary. Either sliding or swinging gates can be furnished, equipped for padlock or with tumbler lock arrangement as specified.

Like outside fencing, the effective arrangement of chain link interior partitioning is "tailor-fitted" to individual building requirements.



TRADE MARK

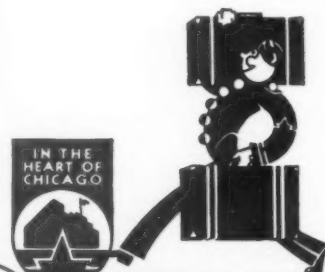
ALUMINUM OXIDE
SILICON CARBIDE
CORUNDUM
(AFRICAN)
TURKISH EMERY

Refiners and Makers
of
ABRASIVE GRAINS
AND
FLOURS

AMERICAN ABRASIVE COMPANY
WESTFIELD, MASS.

HUSTLE WITHOUT BUSTLE

We're hustlers when the occasion demands but we don't make any noise about it. Our service is as cheerful and quiet as it is speedy.



BISMARCK
HOTEL-CHICAGO
RANDOLPH AND LA SALLE

Emil Eitel—Karl Eitel—Roy Steffen

PURCHASING

THE MARKET PLACE



*A quick review of the market
noting major developments in
supply, demand and prices of
selected basic commodities*

Supply

BURLAP

BURLAP PRODUCTION has switched from hessians to heavy sacking in recent months. In the fourth successive monthly decline, stocks of hessians are now down to 450 million yards, the lowest figure in a year. Stocks of sacking, however, mounted 51 million yards in two months to a total of 186 million (100 million is regarded as normal). Production schedules were sharply cut on August 1st.

COAL

BITUMINOUS COAL statistics show the effect of the protracted suspension of mining operations in April and May. Industrial stocks on June 1 were at the lowest level since 1933 as a result of the drain on these reserves. Stock piles are being replenished but are still relatively low. Stocks of unbilled coal and lake dock coal are substantially less than a year ago. Production was up to 7,150,000 tons weekly for the second half of July, and for the year to date is 8.8% ahead of 1938.

COPPER

WORLD STOCKS OF COPPER on July 1st were down for the second successive month. The total tonnage of refined metal was 513,670 tons, a decline of 7,288. U. S. stocks were down 2,143 tons, to 355,012. Blister stocks were also substantially lower, indicating that the present downward trend will continue. World stocks were off 11,402 tons, of which 2,403 represented the decline in this country. The statistical picture is consequently much stronger than during the early part of the year, when stocks were as high as 6 months' supply, or double the normal ratio. The improvement is more notable in terms of rising consumption and the exceedingly heavy buying wave that followed the period of these statistics.

Demand

GOVERNMENT SANDBAG orders were practically completed in the second quarter. Third quarter shipments of burlap to North and South American users are generally heavy. U. S. consumption, however, is declining. The June figure, at 47 million yards, was down 3 million for the month and registered the lowest total in more than a year. For the first half year, the total is fractionally lower than in 1938.

INDUSTRIAL CONSUMPTION of coal has been mounting more rapidly than reserve stocks, so that the greater tonnage on hand shows actually a lower number of days' supply. While the general policy is to build up reserves moderately, there has been no strong forward buying movement, nor is such a development likely until the price situation changes. Volume of purchases for the first half year was up 9% as compared with the corresponding period of 1938, with the prospect of a greater increase during the second half.

DOMESTIC SALES OF copper in July reached an all-time high record at 182,576 tons, comfortably exceeding the previous peak month of October, 1936, and nearly tripling the June total, which had itself been the best in 8 months. Approximately 75% of the July tonnage was bought in three days of the opening week by fabricators seeking to cover requirements in view of a stronger market, and before the price advance, but a very substantial volume went at the higher quotations. June consumption amounted to 57,878 tons, the highest figure of the year, and 4,305 tons in excess of deliveries. Export demand was likewise more active than for some months past, both from Europe and Japan.

Market

BURLAP PRICES rallied slightly in the first half of July, on the more favorable statistical position. In the absence of active buying support and with only moderate trading, these advances were not sustained, and the schedule sagged in the closing week. Cables at the turn of the month were more encouraging, but the record for July showed a net decline of 5 to 15 points.

THE NATIONAL BITUMINOUS Coal Commission turned over its portfolio July 1st to the Department of the Interior, which will have charge of the administration of the Bituminous Coal Act and the prices promulgated thereunder. Considerable optimism was expressed as to the probable success of this price schedule, a far more painstaking and comprehensive calculation than the two previous efforts. However, 179 complaints were received at the first Washington hearing, from both consumers and operators, and latest indications are that hearings may extend into January. Meanwhile, the market declined slightly in July.

AFTER A LONG PERIOD of stability at 10 cents, the domestic price of copper advanced July 7th. The change had been indicated by an increase in scrap prices a week earlier, and by stronger foreign quotations, as well as by a buying wave of unprecedented proportions. Two advances of $\frac{1}{8}$ -cent on that day carried the price to $10\frac{1}{4}$ cents, and a further rise on the 21st brought the quotation to $10\frac{3}{8}$ cents. The new level was not clearly defined, metal being available at $10\frac{1}{4}$, $10\frac{3}{8}$, and $10\frac{1}{2}$ cents up to the close of the month. Alloy and brass prices were generally adjusted on the $10\frac{3}{8}$ basis, while scrap prices reflected the $10\frac{1}{4}$ cent level.

BARNES BETTER Hack Saw BLADES

Just try Barnes Blades! Tell us your cutting problem—let us suggest a blade to whip it economically.

W. O. BARNES CO., INC. Detroit, Mich.

You Need LOCKS for

CABINETS FURNITURE FILES
GAS METERS VENDING MACHINES
DOORS CUPBOARDS CLOSETS
COIN MACHINES SCALES
BURGLAR ALARMS • PADLOCKS
GARAGES AUTOMOBILES
RADIOS REFRIGERATORS

Write for Catalog—Dept. "P-8"

Chicago Lock Co., 2024 N. Racine Ave., Chicago, Ill.

Order "**CHICAGO**" LOCKS
and Get "**UTMOST** Security
at **LOWEST COST!**"

Supply

COTTON

COTTON PLANTING REPORTS, compiled by the Department of Agriculture, indicate that the new crop will represent the smallest acreage since 1899. On the basis of normal abandonment an indicated yield of 217.2 pounds per acre, the 1939-1940 crop should be in the neighborhood of 11 million bales, though some estimates run 5% lower. Many in the trade believe that such a crop can be marketed without a government loan, particularly if the loan level does not exceed 8.30 cents.

IRON and STEEL

STEEL OUTPUT, WHICH averaged 52.74% of capacity for the first half year, rose swiftly after the holiday lull to set a new high for the year at 60.6%, and stood at 59.3% in the first week of August, with activity well distributed both geographically and with respect to products. Raw steel inventories at the mills, which were low in the second quarter, are now close to desired levels, and there is some evidence of larger consumers' stocks as a new drive by the C.I.O. threatens to disturb normal production schedules.

LUMBER

LUMBER OUTPUT broadened in July, reaching 69% of the seasonal weekly average of 1929, and 21% ahead of 1938 for the year's total to date.

NAVAL STORES

STOCKS OF BOTH turpentine and Rosin at southern markets were moderately up in July, but lower grades of gum rosin were rather scarce as recent production has run principally to the lighter grades, of which a considerable part has been put under government loan.

Demand

AS THE SECOND HALF year got under way, cotton goods achieved a desirable balance in which unfilled orders were slightly greater than stocks on hand at the mills. This resulted from June business in which orders exceeded production by 57% and shipments were 5% ahead of the curtailed output. July was relatively quiet until the third week, when a new buying movement of substantial proportions developed. Print cloths received the greatest notice, but the improvement was equally notable in denim, sheeting and other standard lines.

DEMAND FOR STEEL showed moderate optimism and a generally rising trend, but without any outstanding features of unusual strength. The good purchases of the second half month were partly in compensation of the holiday let-down and partly in anticipation of possible labor trouble. There is uncertainty in the automobile outlook, though some orders are being released, crop losses due to the drought are adversely reflected in tin plate demand, and railroad buying continues light. Structural items are in better volume and galvanized sheets are improving. Jobbers' sales were light.

SHIPMENTS AND NEW orders were likewise in better volume, being up to 73% and 81%, respectively, as compared to 1929 averages.

TRADING IN NAVAL stores was generally light, but improved somewhat in the second half of the month. The greatest activity occurred in dark rosins, where some stringency of supply prevailed, and a sharp price rise accentuated this interest in the closing weeks.

Market

COTTON PRICES were fairly strong after the acreage estimate and subsequent unfavorable weather reports. Spot quotations lost a little ground over the month, but futures ended the 1938-1939 season at the highest monthly closing prices of the year. The textile list generally advanced $\frac{1}{8}$ to $\frac{1}{4}$ cent per yard, most of the increase being recorded in the third week, when demand was most brisk. The outlook is for sustained strength during the second half year, with a moderate increase in volume.

THE STEEL PRICE list exhibited considerable strength throughout July and with deliveries of May bargain steel virtually completed there was notable freedom from price cutting. Bars and oil pipe strengthened early in the month, and quantity extras have been revised to bring higher net prices on small tonnage orders. For three months, base prices were earned on as little as three tons, but twenty tons is now held to be the minimum. The real test is expected to come with October automobile orders. Scrap prices have been buoyant and went up to \$16.00 on August 1st, the highest figure in nearly two years.

LUMBER PRICES were on the soft side. Southern pine dipped to a new low for the year at mid-month, but recovered to show only a fractional loss.

FLUCTUATIONS in turpentine prices were narrow and there was no net change for the month. Medium grade rosins advanced steadily throughout July, gaining 20 to 35 points, and in the final week dark rosins were sharply up, 55 to 65 points over previous levels.

Supply

PAPER

PAPER PRODUCTION was seasonally lower in July, but the decline was not of great proportions. Paperboard production came back strongly after the holiday and was reported as equal to the year's high rate of last March, at 71%.

PETROLEUM

DAILY AVERAGE output of petroleum held slightly over $3\frac{1}{2}$ million barrels in July as Illinois fields reached new production peaks. The run to stills was high, and gasoline stocks held to disturbingly high levels despite a good demand. Heavy fuel oils, on the contrary, were in limited supply in a normally light consuming season.

RUBBER

WORLD SUPPLIES OF rubber in July, representing 5.7 months' supply, reached the lowest level in two years, and shipment quotas were raised 5 points to 60% of the basic allotment, effective immediately. Such action had been predicted for the 4th quarter, but came unexpectedly at this time. The action adds about 40,000 tons to rubber supply for the 2nd half year, and is estimated to provide an approximate balance with consumption. Lower shipments in June had fairly well wiped out earlier over-shipments on the quotas.

TIN

PRODUCTION OF TIN has been sharply curtailed and is currently running at about 77% of estimated consumption. World supplies are now at the lowest point since January, but are still more than 10% above the highest level of the two preceding years.

ZINC

DESPITE A 7% CUT in June production and a fairly active market, surplus stocks of slab zinc stood above 135,000 tons in July, the largest figure recorded in twelve months. The situation was not unfavorable, however, being more than offset by a substantial increase in unfilled orders.

Demand

DEMAND IS ALSO seasonally lower but is running 8 to 15% ahead, of 1938. Newsprint consumption continues at disappointing levels but is gradually working upwards. Inquiry for kraft was the most active phase of the July market.

DEMAND FOR MOTOR fuel was in good volume and estimates of yearly consumption are high, but purchases in the bulk market were generally cautious in view of the unsettled price situation. Similar conditions prevailed in other petroleum products except kerosene, where jobbing interest was well sustained.

WORLD CONSUMPTION OF rubber has been fairly steady at 85,000 tons per month since the first of the year, with the U. S. accounting for about 52% of the total. U. S. consumption expanded rather sharply in June, registering 6.5% over May as tire output was stepped up and tire shipments of 5,733,216 units set a six-year high. Factory buying was active in both spot and futures markets, but tapered off somewhat following the quota announcement.



WHILE COPPER HELD the center of interest among the metals in July, tin was virtually forgotten, and trading was strictly of a routine nature. Tin plate operations failed to recover substantially after the holiday shutdown, and crop uncertainty complicates the demand factor.

DEMAND FOR ZINC was better than for some months past, this being in part a reflection of the strong buying movement in copper, but also showing considerable independent strength. Sales were spotty, but the total added up well, and sales in the third week set a high record for the year to date.

Market

THERE WERE NO important changes in the paper price list during July. Pulp was rather weak; new white rags, folded news and mixed waste paper were strongly up toward the end of the month.

THE PRICE SITUATION showed few changes of a basic nature. The chief weakness appeared in gasoline. Tank wagon prices were cut early in the month and the retail price structure was weak in several eastern metropolitan areas. Fuel oil and kerosene showed strength, and some fractional advances were reported on these products. Industrial lubricants were unchanged.

RUBBER PRICES stayed close to the $16\frac{1}{2}$ -cent level for the first half month, but climbed appreciably after the release of June statistics, reaching $16\frac{7}{8}$ cents by the 18th and holding strongly at $16\frac{11}{16}$ for the ensuing week. Prices softened slightly on the increased quota ruling, which tempered the supply factor but was rather surprising in view of the industry's price objectives. The month closed firmly at $16\frac{5}{8}$, showing a small but important gain, more notable in the market tone than in the actual quotation.

TIN PRICES WENT into a gradual but positive decline during July, sagging weekly from the opening quotation of 49 cents to 48.45 cents at the close. There is little in any phase of the situation at the moment to indicate immediate strength.

THE FIRST PRICE change of the year in zinc came late in July, when a leading smelter raised the price 10 points to 4.60 cents per pound, East St. Louis. A dual price structure prevailed briefly, but before the week was out the level was firmly established at the higher level, supported by good trade volume.

THE PURE

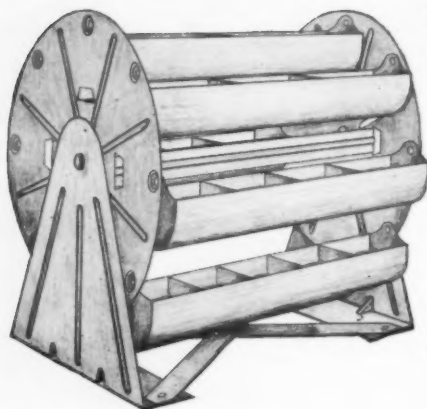
PURE THREE POINT LUBRICATION
A Complete Line of Industrial Petroleum Lubricants

THE PURE OIL CO.
CHICAGO, ILL.

Ask a Pure Oil Engineer to help solve your lubrication problems

OIL CO.
CHICAGO U.S.A.

NEW PRODUCTS & IDEAS

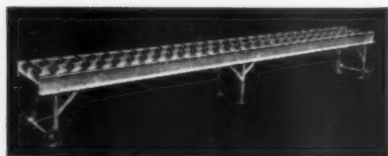


**PARTS
CONTAINER**

No. A 68

CONSISTING OF A PAIR of flanges which rotate on the brackets and carry eight partitioned bins, this handy container is useful in assembly and shipping rooms to hold small quantities of parts and supplies. The container measures 10" X 10" and stands 12" high. It can be placed on top of a bench or secured to a wall by means of its support brackets. The unit is painted green.

Use coupon below



**PORTABLE
CONVEYOR**

No. A 69

THIS NEW ROLLER TYPE portable conveyor constructed of aluminum combines light weight with high tensile strength. It is equipped with steel ball bearing wheels fitted on an eccentric axle at each end of the conveyor. When the wheels are in a "down" position, the conveyor is easily rolled from place to place by only one or two men. When the wheels are lifted up, the conveyor rests firmly on the floor. The rugged construction and high tensile strength of this new conveyor enable it to support

PURCHASING

205 East 42nd St.
New York, N. Y.

Please send complete data on the New Products listed by number below:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Name

Company

Address

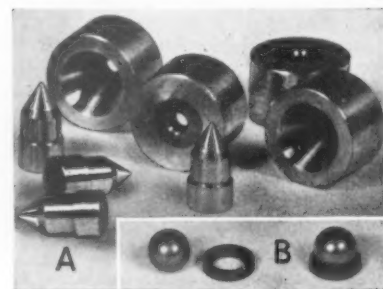
City State

PAGE 52

extremely heavy loads and it will not rust or deteriorate in any way. Ease of cleaning makes it ideal for use where liquids, such as fruit or vegetable juices, are liable to spill from open containers. The conveyor can be supplied with or without legs or wheels and is available in varying widths, lengths and heights to suit different needs.

Use coupon at left

INTER- METALLIC COMPOUND



No. A 70

PUMP VALVES AND OTHER VALVES subject to unusual abrasive or corrosive action are now being made of Kennametal, the new intermetallic compound of tungsten-titanium carbide. Recent tests of this material indicate unusually high service qualities. Several high pressure needle valves, equipped with Kennametal needle tip and seat (Fig. 1-A) were used in experiments involving a tarry fluid containing grit and it was found to be necessary to replace only one valve every one to two weeks where, heretofore, it had been necessary to change as many as seven valves in 24 hours. Kennametal balls and seats for oil well pump valves (Fig. 1-B) have also been severely tested by hammering the balls against the seats with a pneumatic hammer. The tests showed that the valves were still serviceable after 105 minutes of hammering as compared to a life of 9 to 11 minutes for tungsten carbide balls and seats. Kennametal can be supplied in any desired shape for valve parts and in three grades having varying physical properties.

Use coupon at left

INSULATED HAND LAMP



No. A 71

THE COMPLETE ASSEMBLY of this new hand lamp consists of insulated guard, fiber hook, molded rubber handle, and heavy duty socket insert with strain relief clamp. It is recommended for the many operations in electric generating plants and sub-stations, garages, battery rooms, steamships, railroad shops, telephone exchanges, and all types of work and electrical inspection where a metal lamp guard constitutes a hazard. The lamp guard is constructed of a molded dielectric composition in a new design and is sturdy, highly waterproof and heat resistant. The round composition dowels supporting the rugged end members of this cylindrical open end guard do not obstruct light nor cast shadows. The guard is fitted with an eye shield to protect the user's eyes from glare. The oil-resistant handle clamps

PURCHASING



SHINGLES . . . in bundles are quickly strapped with the help of the Adjustable Strapping Table Support and the "Mechanical Arm" Tool Support, "Ace" Accessories.

STANLEY "ACE" Strapping Tool

Puts Steel Strapping On A Production Basis

A fraction of a minute to apply strapping! That's the record made possible through the simplified design and easy action of the new Stanley "Ace" Strapping Tool. But Stanley Engineers knew that reduction of strapping time wasn't enough—that valuable time is wasted handling and positioning cartons to be strapped.

That's why Stanley developed "Ace" Accessories—to make it easy to strap any product, any container, under any condition.

Stanley Engineers will design new ones to meet your special need. Put the Stanley "Ace" and the correct accessories to work for you now! Write for the descriptive folder, or ask for demonstration. The Stanley Works, Steel Strapping Division, New Britain, Connecticut.

Speedy . . . Light . . . and Simple!



Two simple motions with "Ace" Strapping Tool and the job is done! One lever tensions strapping, other cuts strapping, feeds seal, crimps seal in one motion. It's light—weighs only 10 lbs., 3 ozs.—and simple enough for a beginner to operate easily.

Positive spring feed holds seals in magazine, in feeding position, assuring sealing in any position. Easily loaded with a handy clip of 100 seals.

STANLEY
Trade Mark

STANLEY STRAPPING SYSTEM

AUGUST 1939

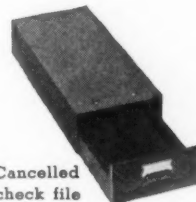


from
The Cleveland Press
July 6, 1939

Wage-Hour Records Are More Important Than Ever Now

Keep them in SAFE-T-STACK Steel Storage Files. Regardless of what size forms you use we make files to fit at no price premium. Steel Storage Files are made of heavy, welded steel. They conserve space, resist fire and protect records from loss, rodents and dirt. Individual files stack and lock with the SAFE-T-STACK locking device. Individual drawer locks are furnished for confidential records.

Steel Storage Files last indefinitely, yet they cost less than cardboard boxes and shelving. Send for literature.



Cancelled
check file



Time clock
card file

THE STEEL STORAGE FILE CO.



PATENTED AND
PATENTS PENDING

2216-18 W. 63RD STREET
CLEVELAND, OHIO

ORIGINATORS OF STEEL STORAGE FILES

PAGE 53

For
Strength
and
Endurance
use
RED STREAK SEALING TAPE



● Your shipping department needs a sealing tape that has the strength of a weight-lifter and the endurance of a marathon runner. But where to get such a tape within the limits of a close budget is sometimes a problem. It's easy to solve these difficulties with Red Streak Sealing Tape, for it's noted for strength and the quick setting glue insures permanent adhesion. Low in price, too. Write today for samples.

The BROWN-BRIDGE MILLS TROY, O.

**WRITE FOR
SAMPLES**

TRY IT - - then you'll
know why Red Streak
Sealing Tape is a better
sealing tape for all pur-
poses.



**ENGINEERING
SKILL**




EVEN a century-
old background of
quality products is not
alone sufficient to es-
tablish an uncondi-
tional reputation for

engineering skill. There must also be a pride in work-
manship, careful inspection, modern methods and up-to-
date equipment . . . all continued over years of progres-
sive development.

R B & W products have always been noted for their
accuracy and quality; for their standards of strength,
finish and thread fit; for the engineering skill which
these features reflect.

Such engineering skill has made EMPIRE Brand
Bolts, Nuts and Rivets the indisputable standard in all
industries the world over.

R B & W quality products: Bolts, Nuts, Rivets, Screws and Washers are
furnished from large warehouse facilities which insure prompt delivery.

**RUSSELL, BURDSALL & WARD
BOLT AND NUT COMPANY**

PORT CHESTER, N. Y. ROCK FALLS, ILL. CORAOPOLIS, PA.

SALES OFFICES: CHICAGO • DETROIT • PHILADELPHIA
DENVER • SAN FRANCISCO • LOS ANGELES • SEATTLE • PORTLAND

securely to the collar of the guard. The unit takes standard or
mill type lamps up to 60 watts.

Use coupon page 52

**BELT
SANDER**



No. A 72

AN IDEAL TOOL FOR WOODWORKING shops, furniture
factories, boat builders, manual training classrooms, and
for general maintenance work in industrial plants, this new
streamlined 3" belt sander has been particularly developed for
those whose work does not justify the purchase of larger and more
expensive sanders. The perfectly balanced tool provides uni-
form pressure over the entire sanding surface and weighs but
13 $\frac{1}{4}$ lbs. A novel feature is the interchangeable knob handle
that can be moved from the top to the nose of the sander for
greater convenience in sanding vertical surfaces, such as sides of
cabinets, boats and blackboards. Another outstanding feature is
the patented "touch-control" lever that instantly releases the ten-
sion on the sanding belt, so that changing belts becomes a very
simple and quick operation. The pressure control trigger switch
presents an important safety feature, making accidental starting
impossible. This switch is mounted in a bakelite handle that is
not only a non-conductor of electricity but is also cool and com-
fortable to hold while sanding. A belt speed of 1,200 sur. ft. per
minute permits fast sanding and produces a smooth, even surface
without ripples or ridges.

Use coupon page 52

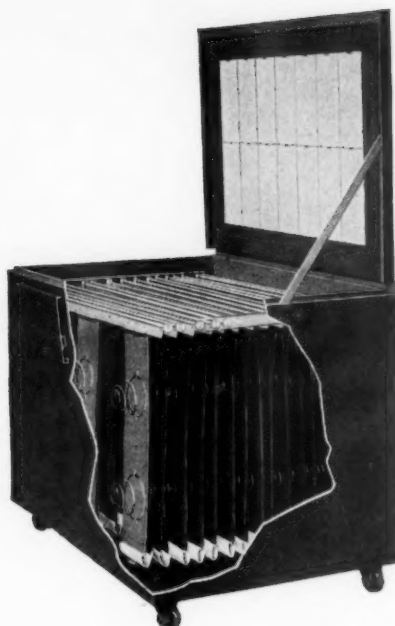
**VISUAL
WEIGHT
INDICATOR**



No. A 73

A SIMPLE AND UNIQUE application of light signals at-
tached to a standard scale facilitates weighing to a pre-
determined figure by enabling the operator to be guided by
these clear visual signals rather than requiring attention to the
scale indicator. Three colored lamps are connected, as shown
to the scale beam, at any desired points to denote over-weight,
under-weight, and in between.

Use coupon page 52



STORAGE CABINET

No. A 74

THE CUT-AWAY ILLUSTRATION shows a recently improved storage cabinet for blueprints, tracings, or drawings. The caster-mounted housing contains a series of spring-backed pockets. These pockets are suspended by rollers operating freely on horizontal tracks on each side. Each pocket takes four folders in an arrangement which permits drawing the folders up or down. The unit has a capacity of from 3,000 to 5,000 drawings or tracings. On the inside surface of the lid is provision for an index to show the material stored in each pocket. A hinged shelf at the front of the housing can be set in a horizontal position to serve as a backing for making notes on any of the contents of the cabinet. Four sizes of the design illustrated contain 15 pockets for 60 folders taking prints measuring 36 by 24 in., 42 by 30 in., 48 by 36 in., and 56 by 24 in.

Use coupon page 52



FIRE OBSERVER

No. A 75

A VIEW OF THE INTERIOR of the furnace walls, fuel bed and boiler tubes without admitting cold air to the furnace is obtained through this 6" x 4 1/2" fire observation port. The port is fitted with pyrex colored glass and a monel metal screen, and is covered on the inside by a shutter, with all infiltration of air eliminated. When the shutter is raised, the port is opened and the colored glass on the outside diffuses the glare and permits safe clear vision of the furnace interior. Release of the pull handle on the outside completely closes the port. When the shutter is in the open position, the pyrex glass is protected by the monel metal screen. Two or more ports are recommended for each furnace, permitting intermittent observation of the fire and fuel bed by the operator, encouraging successful and efficient boiler operation.

Use coupon page 52

AUGUST 1939

Like Movie Star Jean Parker, OLD TOWN PURE SILK TYPEWRITER RIBBONS

are popular with thousands of secretaries. For here are ribbons that produce letters which give prestige to the executive correspondence... clean, clear, truly beautiful! When a letter means an order it's always wise to type it with OLD TOWN PURE SILK.

Jean Parker, Star of Republic's Picture, "She Married a Cop."



The FIRST Cost is the LAST Cost

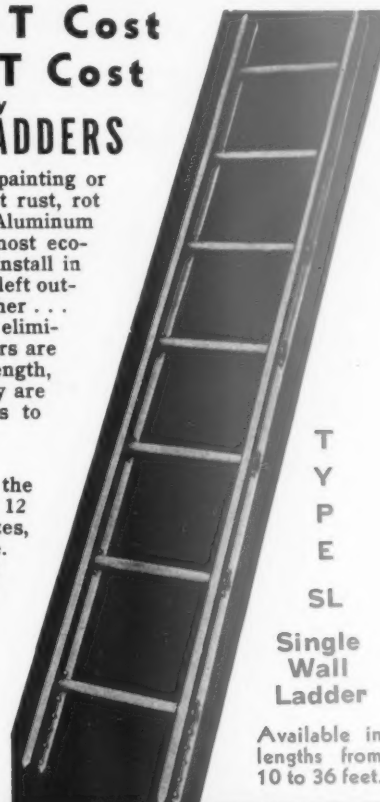
when you buy

ALUMINUM LADDERS

Because they require no painting or other finishing and do not rust, rot or deteriorate in any way, Aluminum Ladders are by far the most economical ladders you can install in your plant. They may be left outdoors in all kinds of weather... upkeep and repair bills are eliminated. Aluminum Ladders are characterized by great strength, lightness and safety; they are made in styles and sizes to suit any need.

A ten-foot ladder of the type shown weighs only 12 lbs.; thirteen additional sizes, up to 36 ft., are available. Corrugated rungs prevent slipping. The SL type of ladder is particularly suited for use by mechanics, pipe fitters, millwrights, carpenters, painters, plumbers, and other workmen in the modern industrial plant.

Write for catalog.



Single
Wall
Ladder

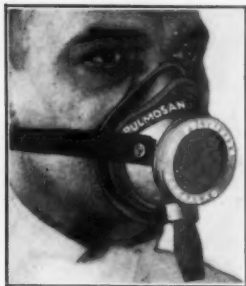
Available in
lengths from
10 to 36 feet.

Aluminum Ladder
Company

150 ADAMS STREET
TARENTUM, PA.

PAGE 55

PULMOSAN RESPIRATORS



**R-110 DUSTPRUF
RESPIRATOR**

Weights only 3 ounces. An extremely light, comfortable, efficient respirator for the many harmless dusts in industry. Try the R-110. Its low price will save you money.

assure your workers
**UTMOST SAFETY
AND COMFORT**

Safety is vital in respirators, of course, but be sure you also get utmost comfort, lightness and easy breathing to maintain workers' efficiency. Every Pulmosan Respirator provides these essentials in the highest degree... assured by their aluminum body, patented rubber face cushion, positive exhalation valves and other exclusive design features. Select from more than 40 types of Pulmosan Respirators to meet every breathing hazard. Tell us your needs, for recommendation. Write for catalog.

**PULMOSAN SAFETY EQUIP.
CORPORATION**

Dept. P, 176 Johnson St.

Brooklyn, N. Y.



DO YOU USE STRESS PARTS?

If so, consult Kropp's Drop Forge Dept.

Kropp makes hundreds of types of machine, equipment and automotive parts exposed to stresses for manufacturers everywhere. Our drop hammer men are experts. No matter how intricate, how small or how large, Kropp makes a better drop forging—12 drop hammers, complete die shop and consultation service.

Drop Forgings eliminate breakage of stressed parts, reduce replacement costs, and will enhance or protect the good name of your product. In many cases, they save over cast or fabricated parts.

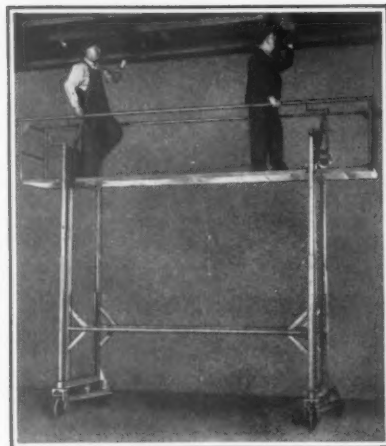
Write for Bulletin showing our complete steam hammer, drop and upset forging and machine facilities and name of our nearest representative.



KROPP FORGE COMPANY

America's Largest Job Forging Shop
5315 W. ROOSEVELT ROAD, CHICAGO, ILLINOIS
Representatives in Principal Cities

PORTABLE SCAFFOLD



No. A 76

THE TELESCOPING END-FRAMES of this new scaffold are raised or lowered by a crank at the top of the frame assembly. Each end-frame carries a platform-supporting cross-member and is mounted on a pair of trailing casters at one side and a drive wheel at the other, connecting to a crank and steering level to propel and guide the frame along a floor. The illustrated model has a rail-equipped platform which can be raised or lowered in height between 1 ft., 6 1/2 in. to 9 ft., 3-5/8 in. Maximum overall height is 12 ft., 2 in. Minimum distance between the end-frames is 5 ft., maximum 8 ft. The casters and wheels on each frame stand 46 in. apart and the castors have a spread of 18 in. The unit can be easily dismantled and stored in a small space, and assembled sufficiently high above the floor to clear desks and standard office furniture. Load capacity on the platform is 1,500 pounds.

Use coupon page 52

Leather Consumption

Consumption of leather during the first half of 1939 amounted to 11,498,000 hides, and if that rate is maintained over the balance of the year the total may exceed the pace of 1936 and establish a new all-time record. There has been no over-expansion of inventories. Stocks of shoes are generally low and the industry expects a favorable second half year.

Steel Costs and Prices

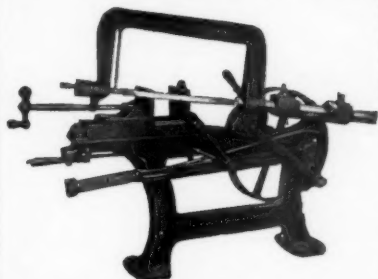
(Continued from page 30)

annealings are being produced in two drawing operations without additional annealing. Where 40 to 50 panels per hour used to be peak production, 200 or more can now be made. Despite more severe operations, breakage and rejections have decreased. In the words of T. P. Archer, Vice President in Charge of Operations for the Fisher Body Corporation, "Our rejections and breakage in present day operations, which are infinitely more severe than any operations attempted five years ago, have been reduced to an average of between 3% and 4%. In the old days a particularly bad part would develop breakages and rejections up to as high as 30%."

In a speech before the American Society for Metals in 1935, J. M. Watson, Chief Metallurgist for the Hupp Motor Company, emphasized the part which better steel and non-ferrous metals had played in lowering the price and improving the quality of American auto-

MARVEL Dry Cutting General Purpose Saws

Among low priced, dry cutting, general purpose shop saws, 80% in use are MARVELS, for they have built an unparalleled reputation for straight cutting, absolute dependability and long, trouble-free service. From the distributor's viewpoint they have everything that builds sale: The MARVEL Name, dominance in their field; wide-spread advertising support; and the design features that close sales.



Write for Bulletin on MARVEL Saws and Blades Buy from your local distributor

Armstrong-Blum Mfg. Co.

"The Hack Saw People"
5760 Bloomingdale Ave.
Chicago, U.S.A.
Eastern Warehouse & Sales:
199 Lafayette St., N. Y.

mobiles. It is especially significant that Mr. Watson and Mr. Archer were speaking from the standpoint of consumers of steel.

Four years ago, the Society of Automotive Engineers appointed a committee to revise the SAE steel specifications. Incidentally, the SAE specifications are intended for the general use of the metal working industry. The three largest motor companies have their own specifications, which are very similar. In addition to the Chairman, F. P. Gilligan of the Henry Souther Engineering Corporation, there were fourteen members representing prominent consumers of steel and fourteen members connected with producers of steel and ferro-alloys. When the work of the committee was done, a report was submitted in which the following comments are to be found:

"The particular quality a purchaser requires will depend upon additional factors that can not be specifically defined in a general specification. In general, it may be stated that the quality the purchaser obtains will depend on his own and his supplier's knowledge of the specific requirements, reinforced by such inspection requirements as he may impose."

Speaking of this age of "tailor made" steels, Mr. Gilligan adds: "It is a condition bred by intensive competition arising from sub-normal steel consumption and is working to the advantage of the steel consumer from a quality standpoint. Competition is not now confined to the price field. It is a question of quality and service; hence we have competition of one steel against another, of one alloy against another, and finally, and most important, of the research facilities of one steel company against the research facilities of its competitor."

In speaking of service, it might be well to mention the free metallurgical service furnished to consumers, which would cost thousands of dollars if secured from consulting engineers. Recently the cost of free metallurgical service furnished by the Republic Steel Corporation to users of its stainless steel was estimated to be four cents for each pound of stainless steel sold.

It may be argued that this competition with respect to quality is confined to large customers. Attention is directed to recent advertisements of Joseph T.

Yes...THERE'S PLENTY ABOUT A DUMORE THAT'S DIFFERENT

Built-in tool post provides quick vertical or horizontal adjustment.



Patented "fog of oil" lubrication permits spindle speeds up to 42,500 r.p.m.



With a Dumore the full capacity of the lathe is available.

A toolroom foreman says: "I bought a Dumore No. 5 and 5 additional quills because in this one tool I virtually got 6 grinders." "It's the 25 years' background of precision tool making that appealed to me," says a shop superintendent who okayed a purchase of the littlest and biggest Dumores... a "Tom Thumb" and a "Chief". Your Industrial Distributor will show you what a Dumore can do to cut costs...

THE DUMORE CO., Dept. 359-H, Racine, Wis.

DUMORE PRECISION GRINDERS

SAFETEX GUMMED TAPE



Pull-tab opener in every roll.

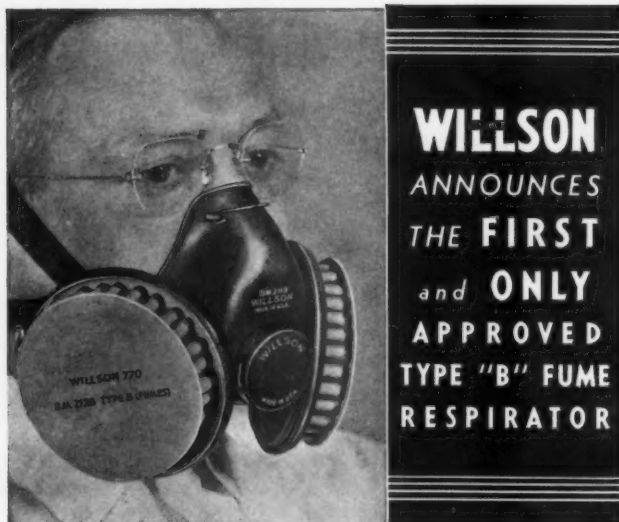
Processed to make it pliable and non-curling.

Grooved glue surface for better moisture distribution.

No. 1 Northern Kraft only.

Highest grade glues for fast and permanent sealing.

CENTRAL PAPER CO.
MENASHA, WISCONSIN



The new **WILLSON** No. 770 Type B Fume Respirator, bearing Bureau of Mines Approval No. 2128, is approved "for protection against lead, mercury (except mercury vapor), manganese, magnesium, aluminum, antimony, arsenic, copper, chromium, iron, and zinc fumes resulting from sublimation or the condensation of their vapor, or from the chemical reactions between their vapor and gases."

Operations for which the **WILLSON** No. 770 Respirator is recommended include: manufacture of lead alloy steels, smelting and refining of lead and zinc, storage battery manufacture, soldering and babbiting over extended periods, brass and bronze foundries, type foundries, potteries where lead glaze is used, porcelain and enamel plants, etc.

Write for
Complete
Information



First in speed, first in tenacity, first in value!...No wonder **ORANGE CORE SEALING TAPE** is tops among the nation's leading shippers! Quick to moisten, quick to set, it is superior from every standpoint — yet costs no more than ordinary tapes. Order **ORANGE CORE** from your dealer today. Write now for free folder on correct sealing methods.

ORANGE CORE
Sealing Tape

MOORE & THOMPSON
DIVISION HUDSON PULP & PAPER CORP.
220 EAST 42nd ST., NEW YORK CITY

Ryerson & Son, offering a certification service which makes it possible to fill small orders with steel of known grain size and hardening characteristics at no extra cost over the warehouse price.

Extra Values Have Appeared As Price Extras Disappear

Reference should be made to a statement in the report of the SAE committee that, under the Iron and Steel Code, extras were charged when exacting demands had to be met. This leads to a discussion of the practice of waiving extras.

If a bar is used in the form in which it is received, small seams are not detrimental. If it is to be forged or cold drawn, all seams must be chipped out of the bloom or billet before it is rolled into the bar; the cost of chipping varies with the heat. Prior to the Hoover administration, there was an extra charge of \$5 per ton to cover the extra cost of preparing Forging Quality steel. If such steel was found to have seams during a reasonable forging operation, the mill would replace it without charge. However, if a customer bought ordinary commercial steel, paying no extra, and found it unfit for forging, the mill would not take it back. As the depression wore on, mills began to sell a "commercial steel for forging" for \$3 per ton extra. Finally, in the summer of 1936, the extra for forging quality alone was dropped and there remained an extra \$10 per ton for Special Requirement bars.

However, this extra is often avoided. A consumer will order commercial steel, saying "aim at" a certain restricted grain size or analysis. Legally, he cannot reject the heat if it fails to meet the restrictive requirements, since he paid no extra. He can, however, change his source of supply, and that is the consideration which often induces the mill to give him exactly what he wants. Extras for Drawing Quality on sheets that are required to stand a drawing hazard or surface disturbance furnish another example of extras often avoided. Other examples could be cited. A large tonnage of the same analysis may be ordered for the manufacture of several different parts, only one of which is hard to make. Those heats that meet restrictive tests will be applied on that one part, and the mill has an outlet for the remaining heats on less particular parts. This is a sound economic advantage which large consumers have.

Due to the size and complexity of the steel industry, a thorough discussion of the subject of competition—or the lack of it—would necessarily be exceedingly lengthy.* It would involve a consideration of basing points, "follow the leader" pricing, reciprocity, and tariff. No discussion would be complete without a study of the steady decline (broken only by a slight rise in 1929) in the *Iron Age* composite price for finished steel products, from an average value of 2.697 cents per pound for the year 1923 to an average value of 1.879 cents per pound for the year 1933. The value for 1938, at 2.394 cents, approaches the figures for 1925 and 1926.

GIFTS

FOR ALL OCCASIONS

DIAMONDS
WATCHES
JEWELRY
SILVERWARE
ELECTRIC
APPLIANCES
LEATHER
GOODS
TROPHIES

L. & C. MAYERS CO.

IMPORTERS • MANUFACTURERS • DISTRIBUTORS

545 FIFTH AVENUE, NEW YORK
170 BROADWAY, NEW YORK

ALSO PHILADELPHIA • BUFFALO • ALBANY • HARTFORD

A study of the behavior of the prices of individual steel products would be enlightening. It would be necessary to take cognizance of the lack of relationship between the price movements of various commodities, which makes one a trifle skeptical of the value of conclusions based solely on price statistics and which has caused such distinguished economists as F. W. Taussig and Lewis Haney to reject Irving Fisher's plan for a compensated or "commodity" dollar. No discussion would be complete without pointing out that prices reported in the trade papers are "asking" prices, as was demonstrated during the undeclared price war of 1938. It would be necessary to study such factors affecting steel prices as dividends, higher taxes, higher rates for rail and water transportation of raw materials, material costs and higher wage rates (30% over 1929). It would lead to an investigation of the reason why many large consumers, such as the General Motors Corporation and the American Can Company prefer buying steel to buying equipment for producing their own steel—nor could it be overlooked that the Ford Motor Company shut down its own mill from August, 1932, to October, 1933. No attempt is here made to do more than suggest these many ramifications of the subject. The present discussion of competition with respect to quality has been presented with the thought that it emphasizes one of the most important and least understood phases of the question.

The Printing Specification

(Continued from page 32)

so many variables exist in materials, equipment and workmanship.

Everyone probably knows of firms whose advertising department is instructed to produce something really smart, high class and superior. Due to the organization set-up, the advertising department goes to work, and then turns the job over to the purchasing department. Again due to the set-up, several bids are requested, and these bids may come from printers having different equipment and reputations for various types



**DIESELS
MOTORS
PUMPS
SCALES**

4 Major Lines...ONE Responsibility

Diesel Engines for stationary or marine service,
10 to 1400 horsepower . . .

Pumps with capacities from 1½ g.p.m. to
150,000 g.p.m. . . .

Motors from ¼ to 10,000 horsepower . . .

Scales that record weights from .002 oz. to
1,000,000 lbs. . . .

—All backed by the one, century-proved
responsibility of Fairbanks-Morse and serviced
by a nationwide organization of 36 branches.

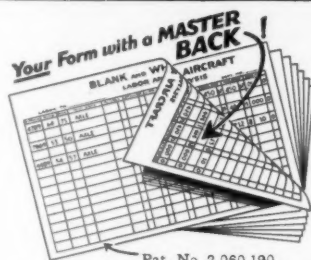
7513-EOPSA40,8

FAIRBANKS, MORSE & CO.

Manufacturers

GENERAL OFFICES

600 South Michigan Avenue, Chicago, Ill.



Reproduce your FORM and
FILL-IN in one run!

Just fill-in on
typewriter as
usual—

Insert in
duplicator drum

—and RUN
—on BLANK
PAPER!



**The PROCESSED
NEGATIVE
HECTOGRAPH
Master**

SAVE THREE WAYS!

. . . on printing
1,000 of these "Masters"
will save you AT LEAST
75,000 printed forms!

. . . on spoilage
Absolute registration
—NO DISCARD!

. . . on errors
Every figure clear, legible
—POSITIVE!

Ideal for internal
shop forms,
invoices, etc.

FOR ANY SPIRIT DUPLICATING MACHINE

For Information & Demonstration, write:


MANIFOLD SUPPLIES COMPANY

Makers of PANAMA and BEAVER Hectograph Carbon Papers

188 THIRD AVENUE



BROOKLYN, N. Y.



a name to remember
when you need Springs
of any kind—Small
Stampings—Wire
Forms—or Cold rolled
Spring Steel.

"B" is for Barnes—and
a Better Spring for your
mechanism.

The Wallace Barnes Co.
DIV. ASSOCIATED SPRING CORP.
Bristol, Conn.

**SAVE Up To \$69.75
on a TYPEWRITER
with my Amazing Plan!**



**Easy Terms
FREE TRIAL**

**THIS PLAN HAS SAVED PEOPLE
OVER \$1,000,000 ON OFFICE
MACHINES OF ALL KINDS**

Here is an amazing plan that will save you up to \$69.75 on a typewriter over manufacturer's original price. Plan used by some of the largest firms in the country. You can save money too. Send name and model of machine wanted. Details of plan and amount of money you can save will be sent you FREE by return mail. Write TODAY WITHOUT OBLIGATION. PRUITT, 46 PRUITT BLDG., CHICAGO.

YOU CAN SAVE MONEY TOO! WRITE for DETAILS
on Mimeographs, Addressographs, Dictaphones, Etc.

KRON
DIAL SCALES
for industry's every need

THE KRON CO.
BRIDGEPORT CONN.



and qualities of work. The low bidder gets the job, and the company gets just about what it pays for. And unless the circumstances *happen* to be fortunately adapted to the job in hand, the result is likely to be unsatisfactory.

In contrast to this is the firm whose advertising and purchasing departments work cooperatively hand in hand, and who place their printing jobs with printers selected and known as particularly equipped to produce satisfactorily that specific type of work, at a fair price. Under these conditions, the common result is the elimination of worry while the job is in process, and satisfaction in the finished job. The printer has a job he is equipped to handle, and the buyer again receives his dollar's worth—a job that satisfies all concerned.

Results in advertising printing must be considered primarily from the prospective customer's point of view. Quality in the final printed piece means one thing to the seasoned buyer of printing and something else to the average recipient of the printed piece, who receives it in his mail or wrapped in a bundle of merchandise.

To strive for the best results obtainable should of course be the aim of every printing buyer, but do we not as purchasers sometimes become over-critical? Critical to the point of being picayune? How many times does the buyer examine a finished job with a magnifying glass, looking for a flaw in the plates or too great a deposit of ink? Actually, how many of the prospective customers who will receive the piece, will ever consider these minute details?

The ultimate recipient and reader of the printed piece is impressed by design, appeal, subject and copy, rather than by a super printing job. This does not mean that the buyer should relax his vigilance and permit dull halftones and off-register jobs to pass his "OK," but simply that an over-critical attitude does not necessarily add sales value to the printed piece. And fundamentally, sales value is what we are buying.

From many conversations with printers, purchasing agents and advertising men, the consensus is that the most satisfactory results in the printed piece are secured by the firm whose advertising department specifies the essential details of the job adequately but not too minutely, and whose purchasing department selects a printer primarily on his particular ability to produce the job in question, at a fair price—a printer whose good judgment is reflected in superior workmanship. Cooperation between the advertising department, the purchasing department and the printer is essential in securing printing that satisfies.

Efficiency of Purchasing

(Continued from page 25)

case, (and many such cases arise in connection with large and complicated enterprises) the net debit against the purchasing department might well wipe out all credits accumulated by a year's careful and devoted labor over the whole field of procurement.

OFFICE SUPPLIES & EQUIPMENT

Columbia
An Entirely New and
Different Pen and
Pencil

CARBON PAPER

Will not stick, "tack," smudge nor blue. Outstanding advantages: Greater Wear... Clearer impressions... Deeper, more brilliant colors... Blue and Purple.

COLUMBIA RIBBON & CARBON MFG. CO., INC.
Main Office and Factory: Glen Cove, L. I., N. Y.

For greater office efficiency and satisfaction, specify the products of

OLD TOWN RIBBON & CARBON CO.

176 Johnson St. Brooklyn, N. Y.

KOH-I-NOOR DRAWING PENCILS

Now made in U. S. A.

10¢ each

\$1.00 per dozen

Koh-I-Noor Pencil Company, Inc.

373 Fourth Ave.

New York, N. Y.

Save Time and Money with
The ORIGINAL OUTLOOK ENVELOPES
...ESTABLISHED 1902...
GLASSINE OR CELLULOSE TRANSPARENCY
A Size and Style for EVERY PURPOSE.
Write for Samples and Prices
The STANDARD
OUTLOOK ENVELOPE CO.
1001 W. WASHINGTON BLVD., CHICAGO, ILL.

TRINER

Shipping Room, Parcel Post, Mail, Packing, Counting, Storeroom, Production, Food Products, Industrial

SCALES

Over 150,000 TRINER SCALES in U. S. Postoffices

Designed for extraordinary weighing requirements—write today for literature and details

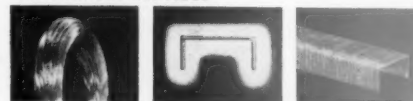
TRINER SALES CO.

441 Meacham St. Mar. Chicago, Illinois
DISTRIBUTORS IN ALL PRINCIPAL CITIES

Always Insist on
STAPLES by ACE
for ACE-PILOT-CADET Machines



They are made to the same high standards of precision as ACE Stapling Machines, and give trouble-free, economical service.



PREMIUM WIRE: at high tensile strength, uniform grain structure and temper
ACCURATE SIZE: assured under unique Perpetual Precision Control
PERFECT ALIGNMENT: assured under unique Perpetual Precision Control

Made by ACE FASTENER CORPORATION, Chicago
SOLD BY ALL GOOD OFFICE SUPPLY DEALERS

You'll be glad you investigated

★ PROCESSED NEGATIVE HECTOGRAPH MASTERS ★

for ANY spirit duplicator

Write: MANIFOLD SUPPLIES CO.
188 Third Avenue, Brooklyn, N. Y.

To be useful, a plan for showing departmental efficiency must be simple enough to produce prompt results, and must also be capable of being operated without excessive clerical expense. It must fairly reflect in figures the results accomplished in the field, must consider all of the elements over which the department has control and none of those over which it has not complete control, and must give commensurate credits for gains and debits for losses. It should provide a statement which may fairly be compared with similar figures in the future, and also, for maximum benefit, with statements covering the experience of other companies in related industries.

Take Soundings of Performance

Granted that the above requirements in an accurate numerical evaluation of a Purchasing Department are essential ones, it is but the part of frankness to say that they are impossible of realization as a practical matter of business. If it is necessary to assign new values to the many variables which appear in the setting of each separate standard or task, against which the actual performance can be held up, and a similar set of values be found for each actual performance, it might conceivably be done in certain instances, but it is believed that these instances would represent such a small part of the whole operation of the department that the re-

sults would be valueless as a measure of over-all efficiency. Time studies in automobile plants are valuable in measuring and standardizing repetitive motions and operations, but time studies would be of little value in raising the efficiency of a third-baseman in handling a hot grounder, or of Harold Vanderbilt in working up to windward of a rival yacht.

And so it seems that while procurement officers must still continue to discharge their important duties in handling the funds entrusted to them to the maximum efficiency of which they are capable, they will do well to forego, at least for the present, an attempt to find mechanical methods by which they may rate themselves, or be rated. This does not mean that they must "go it blind," however. By taking "soundings" at intervals they can satisfy themselves whether their department is getting into dangerously shoal water, or is safely on its proper course. In other words, their opinion will be based on a series of test samples, taken at proper intervals and in the right way—it will not be a continuous record or be expressed in percentage or in dollars-and-cents, but will nevertheless give the procurement officer an understanding of the way in which his organization is functioning, and where it needs adjustment. It is taken for granted that the procurement officer has the necessary training, experience and ability to know what to look for, where to look and what

How Thomas' Register Serves American Industry

FOR over a quarter of a century purchasing agents of every industry in the United States have used Thomas' Register as a guide to sources for supplies and materials. The completeness and accuracy of the classifications have enabled them to receive information on all products which they use, and have made possible considerable savings for them on their purchases. The geographical arrangement of all lists, and the capital ratings for each company, (both exclusive Thomas' Register features), make Thomas' Register the most complete Directory of American Manufacturers ever published.

Is Your Company Using Thomas' Register?

IF your company is not receiving the benefits of Thomas' Register service, we will be glad to place a copy at your disposal for thirty days free trial, without obligation of course. Send today for details of our free trial offer.

Thomas Publishing Company
473 Eighth Avenue NEW YORK, N. Y.

The POPULAR PLACE TO STAY IN TOLEDO



People traveling or living in Toledo quite naturally turn to the Fort Meigs. Not only is it the focal point of activities, but it is a convenient, comfortable and pleasant hotel. Its unusual Purple Cow Coffee Shop and Maritime Buffet are the reasons it is preferred as an entertainment center.

250 ROOMS \$2
WITH BATH from

JOSEPH HERLICY, Manager

FORT MEIGS Hotel

ST. CLAIR BETWEEN MADISON AND JEFFERSON
ONE OF THE ALBERT PICK HOTELS

to do with what he finds,—that is, that he “knows his business.”

But what of management? It, too, should know that the enterprise is getting value received from the dollars spent. How shall it know that all is well?

It is to be regretted that management has too frequently kept away from the purchasing department, and confined its entire attention to other phases of the business. Whether this is from a mistaken idea that the purchasing function is not important, or with the understandable view that a cursory interest will produce only equally superficial results, (a “cursory interest” being all that other demands on their time will allow) is a question. In many cases, at any rate, the management leaves the purchasing department pretty much alone, varying this attitude with occasional dashes into its territory to personally make large or important purchases itself, or to release a load of “bird-shot” for the general moral effect on the personnel. Is it not fair to expect that management, like its contributing branch, purchasing, shall also justify its existence by being possessed of “the necessary training, experience and ability (in management) to know what to look for, where to look, and what to do with what it finds?” If that is the case, management too will take occasional “soundings,” or, to change the figure, “draw samples” to see what lies below the surface.

A Practicable Program

Therefore, the enlightened course of management with respect to the purchasing department may well be to, first, select as director of its functions a man whose fitness for the task has been determined after careful investigation of his integrity, resourcefulness, executive ability and devotion to results, as well as of his knowledge of the requirements of the business itself and of the markets into which he must go. In the hands of such a man, management may be assured that the large opportunities of the purchasing department to contribute to net profits will be not neglected.

Second, it should define the field of the purchasing department as clearly as may be, and should hold the procurement officer responsible for all operations in that field.

Third, recognizing the direct benefits possible, it should maintain an interested and helpful attitude toward what is admittedly one of the most productive and yet least standardized of all the factors in a manufacturing enterprise.

Then, by occasional test-samples drawn by management from the operations of the department, and by analysis of these samples, a well-based opinion of the efficiency of the whole may be secured.

Granted that both the procurement officer and the management are worthy of their positions, the result of the indicated procedure will be a smoothly flowing supply of materials and services into the plant, at the proper time, of the proper quality, in right quantities, at the right price and at reasonable expense for the operation of the purchasing department.

Advertisers in this issue of

PURCHASING

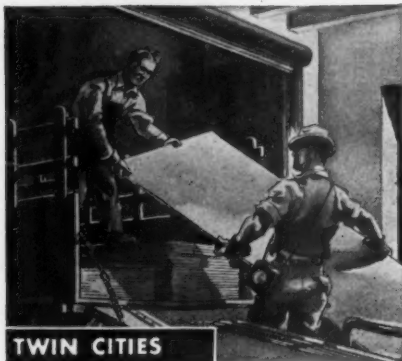
ACE FASTENER CORP.....	36	MANIFOLD SUPPLIES CO.....	59
ALUMINUM LADDER CO.....	55	MANSO CORP.....	37
AMERICAN ABRASIVE CO.....	48	L. & C. MAYERS CO.....	59
AMERICAN CHAIN & CABLE CO., INC.....	15	MCGILL COMMODITY SERVICE, INC.....	12
AMERICAN PAPER GOODS CO.....	46	McLAURIN-JONES CO.....	46
AMERICAN SANITARY RAG CO.....	37	MOORE & THOMPSON PAPER CO.....	58
AMERICAN SCREW CO. & LICENSEES.....	35	MORTON SALT CO.....	39
AMERICAN STEEL & WIRE CO.....	13	NATIONAL ADHESIVES CORP.....	40
AMERICAN TELEPHONE & TELEGRAPH CO.....	3	NATIONAL INDUSTRIAL ADVERTISERS ASSOCIATION...	10
APEX MACHINE & TOOL CO.....	34	NATIONAL SCREW & MFG. CO.....	35
ARMSTRONG-BLUM MFG. CO.....	57	NORTON COMPANY.....	7
ARMSTRONG-BRAY & CO.....	44	OAKITE PRODUCTS, INC.....	32
ARMSTRONG BROS. TOOL CO.....	36	OLD TOWN RIBBON & CARBON CO.....	55
ARMSTRONG SANITARY WIPERS CO.....	37	OUTLOOK ENVELOPE CO.....	61
THE WALLACE BARNES CO., DIVISION OF THE ASSOCIATED SPRING CORP.....	60	PARKER-KALON CORP.....	35, 42
W. O. BARNES CO., INC.....	50	PHEOLL MANUFACTURING CO.....	35
BISMARCK HOTEL.....	48	PITTSBURGH PIPING & EQUIPMENT CO.....	14
BRISTOL BRASS CORP.....	44	PLYMOUTH CORDAGE CO.....	47
BROWN-BRIDGE MILLS, INC.....	54	PRUITT COMPANY.....	60
BRUNT & COMPANY.....	38	PULMOSAN SAFETY EQUIPMENT CORP.....	56
CENTRAL PAPER CO.....	57	PURE OIL COMPANY.....	51
CHANDLER PRODUCTS CO.....	35	REPUBLIC STEEL CORP.....	Second Cover
CHICAGO LOCK CO.....	50	RUSSELL, BURDSALL & WARD BOLT & NUT CO.....	35, 54
CHICAGO SANITARY RAG CO.....	37	JOSEPH T. RYERSON & SON, INC.....	18
CLIPPER BELT LACER CO.....	5	SANITARY INSTITUTE OF AMERICA.....	37
COLUMBIA RIBBON & CARBON MFG. CO., INC.....	14	SCHEINMAN-NEAMAN CO.....	37
CONTINENTAL SCREW CO.....	35, 45	SCOVILL MFG. CO.....	35
CORBIN SCREW CORP.....	35	SCULLY STEEL PRODUCTS CO.....	64
CRANE COMPANY.....	9	SEYMOUR MANUFACTURING CO.....	47
DELIA WASTE PRODUCTS CORP.....	37	SIGNODE STEEL STRAPPING CO.....	41
DUMORE COMPANY.....	57	SIMONDS-WORDEN-WHITE CO.....	44
ELECTRICAL TESTING LABORATORIES.....	16	STANLEY WORKS.....	53
FAIRBANKS, MORSE & CO.....	59	THE L. S. STARRETT CO.....	48
FOREST CITY FOUNDRIES CO.....	43	STEEL STORAGE FILE CO.....	53
FORT MEIGS HOTEL.....	62	STEIN, HALL MFG. CO.....	33
GAYLORD CONTAINER CORP.....	17	THOMAS PUBLISHING CO.....	62
THE B. F. GOODRICH CO.....	1	TRINER SALES CO.....	61
HOUGH SHADE CORP.....	43	U. S. STEEL CORP.....	13, 64
JENKINS BROS.....	Back Cover	VALLEY PAPER CO.....	45
KEASBEY & MATTISON CO.....	11	WILLSON PRODUCTS, INC.....	58
KRON COMPANY.....	60	WIPING MATERIALS, INC.....	37
KROPP FORGE CO.....	56	YOST SUPERIOR CO.....	46
LAMSON & SESSIONS CO.....	35	YOUNGSTOWN SHEET & TUBE CO.....	31
LUDLOW-SAYLOR WIRE CO.....	Third Cover		

8 WAREHOUSES THAT *Rush* AS ONE!



BOSTON

"Urgent phone call received on holiday
—goods shipped that same day."



TWIN CITIES

"Plates had to be cut to size—ordered
4:35 P.M.—shipped that night."



NEWARK, N. J.

"Carload of beams for R. R. bridge
ordered 2 P.M.—shipped at 4 P.M."



PITTSBURGH

"Emergency for flood work—
shipped in 3½ hours."



CHICAGO

"Order received at 4 P.M.—
shipped at 6 P.M."



CLEVELAND

"Order received Sunday—
shipped same day."



BALTIMORE

"Must receive tomorrow
morning." (They did)



ST. LOUIS

"Delivered in 6 Hours."



IT'S the same story with each of the eight Scully Warehouses. They all operate on the principle that our customers always want their material shipped at once. Regular orders, special orders, rush orders—they all get Scully Service. (Of course, when you say "rush" we know you want extra prompt attention—and we act accordingly.)

Phone, write or wire the Scully ware-

house nearest you. Each carries large stocks ready for immediate shipment. And ask for our complete Stock List and Reference Book. It's free, of course.

When you re-tube boilers . . . remember Scully. Complete stocks to fit all requirements ready for instant shipment.

SCULLY STEEL PRODUCTS COMPANY

Distributors of Steel, Steel Products, Copper and Brass

Warehouses at

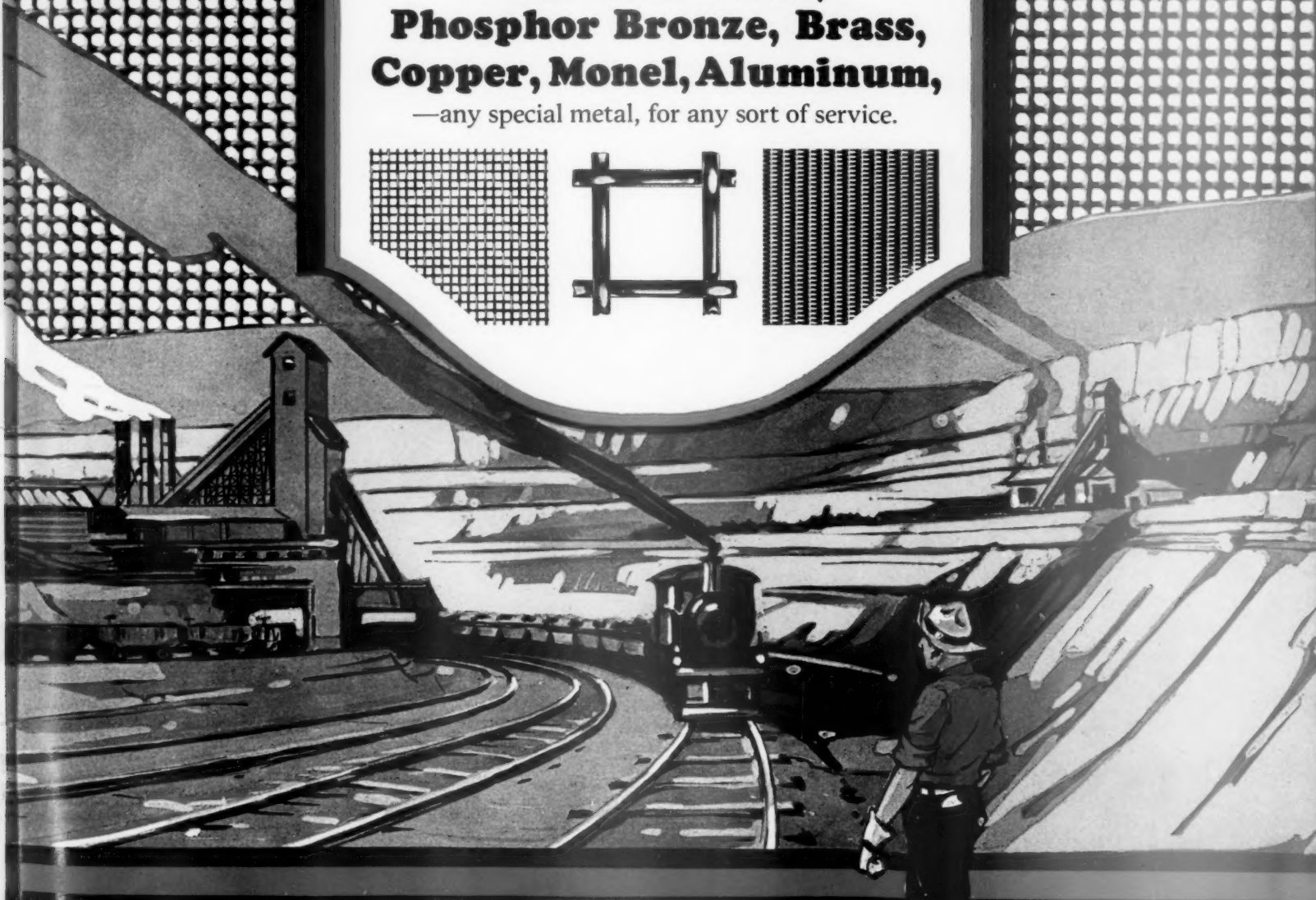
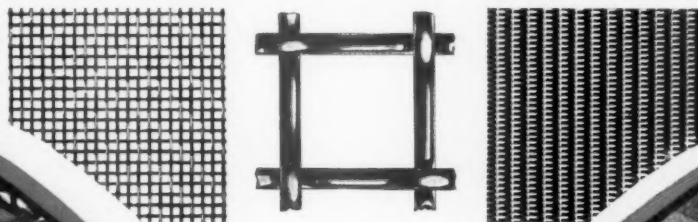
CHICAGO · NEWARK, N. J. · ST. LOUIS · BOSTON · ST. PAUL-MINNEAPOLIS
CLEVELAND · PITTSBURGH · BALTIMORE

UNITED STATES STEEL

LUDLOW-SAYLOR

"Perfect"

**Wire Cloths and Screens
of Super-Loy, Steel,
Galvanized Steel,
Stainless Steel,
Phosphor Bronze, Brass,
Copper, Monel, Aluminum,
—any special metal, for any sort of service.**

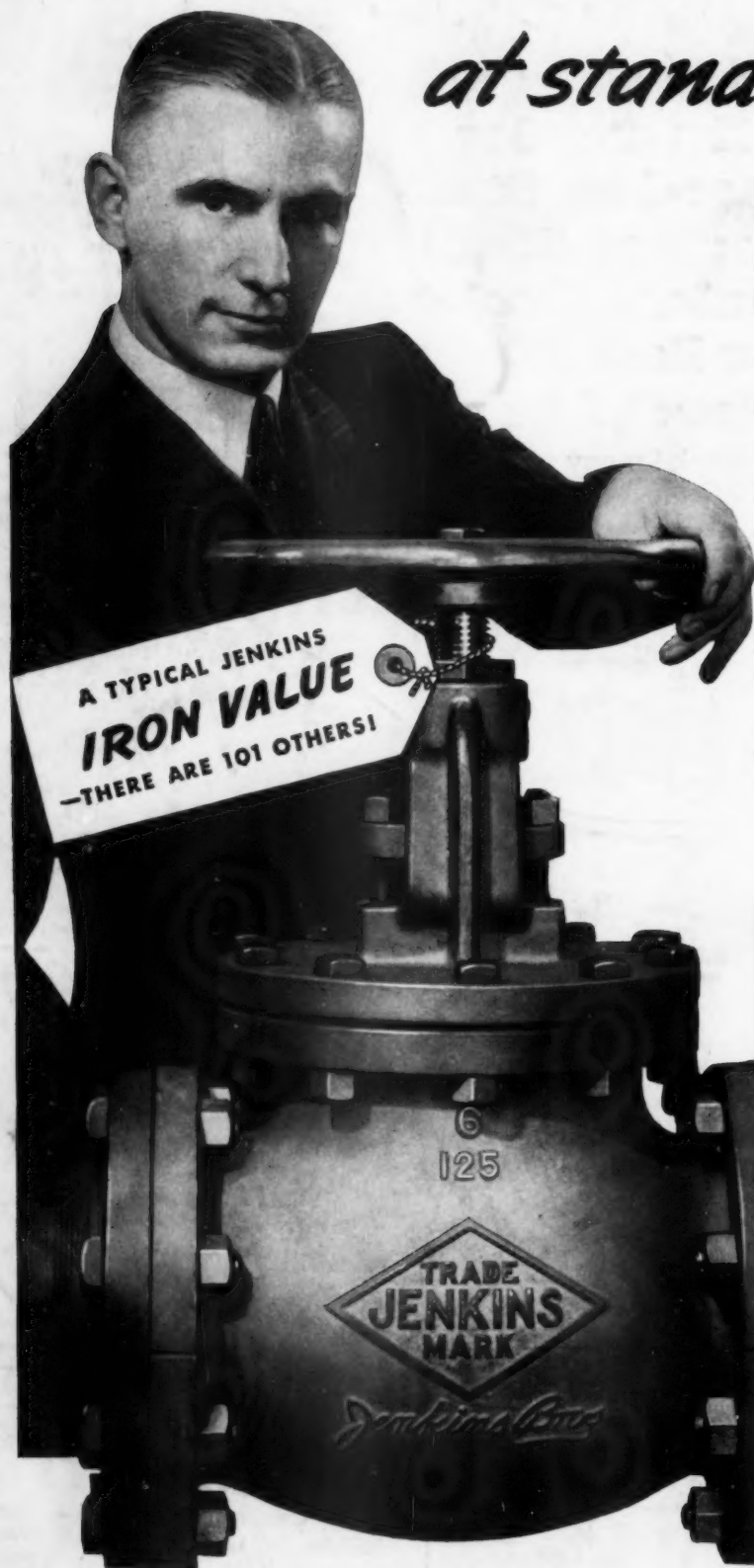


The **LUDLOW-SAYLOR**
WIRE COMPANY
SAINT LOUIS

The wire cloth illustrated in the background is "Perfect" steel wire cloth which has been hot-dip galvanized after woven.

Note the uniform accurate weave—the excellent coating—the bright, smooth finish. Samples are furnished promptly on request.

Top-Quality JENKINS **iron** VALVES *at standard prices!*



TO ALL Iron Valve buyers, we say — this Jenkins 125 lb. Regrinding Globe is as different as *profit* and *loss*.

And to prove it, we ask — go to your local distributor. Check over those new ease of operation and low maintainance features shown in the box. See for yourself the extra values you get in all Jenkins Iron Valves.

Then consider the cost — and you find Jenkins Iron Valves meet competitive "good valve" prices, penny for penny!

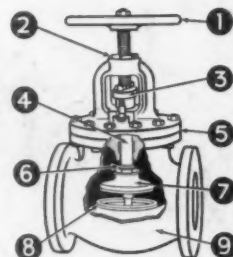
JENKINS BROS., 80 White Street, New York, N.Y.; Bridgeport, Conn.; Boston, Mass.; Atlanta, Ga.; Philadelphia, Pa.; Chicago, Ill.; Houston, Tex.; Montreal, Can; London, Eng.

1864  1939

DIAMOND ANNIVERSARY

PLUS FEATURES OF THIS REGRINDING GLOBE

- 1 Handy Grip Wheel
- 2 Full Length Yoke Nut
- 3 Husky Packing Gland
- 4 Liberally Threaded Spindle
- 5 High Pressure Asbestos Gasket
- 6 Back-Seating Permits Easy Repacking
- 7 Bevel-Faced Bronze Disc
- 8 Renewable Bronze Seat Ring
- 9 IRON *Exceeds* A.S.T.M. Standards



Guide to Figure Numbers of Jenkins Regrinding Globe Valves

STEAM PRESSURE	GLOBE		ANGLE	
	Scw.	Flg.	Scw.	Flg.
125 lbs.	612	613	614	615
150 lbs.	912	913	914	915
175 lbs.	918	919	920	921
250 lbs.	922	923	924	925